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Data Gathering and Justice in the Urban Informal Sector: *Views from the Frontline*

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Abstract

This case considers the challenges faced by civil society organisations (CSOs) in gathering and applying data in urban informal contexts. Given that one billion people are estimated to live in such contexts globally and that the number continues to grow it is clearly important to build understanding of these localities; understanding which CSOs have found difficult to acquire. The specific case is the development of participatory data gathering and knowledge creation programmes – ‘Views from the Frontline’ (VFL), ‘Action at the Frontline’ (AFL) and ‘Frontline’ – by the Global Network for Disaster Reduction and application of that knowledge to influence practice in informal urban contexts.

It challenges *tactical* approaches which assume that knowledge will necessarily lead to effective action, highlighting the barriers faced in the VFL, AFL and Frontline programmes. It therefore investigates structural, distributive and instrumental aspects of data justice, highlighting the necessity for a nuanced and *strategic* understanding which takes account of power structures, if knowledge is to support effective social transformation. The discussion and findings contribute to the developing understanding of data justice and apply this specifically to the activity of CSOs in attempting to engage in informal urban contexts. They highlight the role of ‘small data’ gathering and application as having both process benefits through the engagement of participants, and impact benefits through increased visibility and voice for informal urban populations.

A. Introduction

The focus of this study is the challenges for civil society organisations (CSOs) – both large international and small local – in acquiring data and acting in urban informal contexts. David Satterthwaite sets the scene:

“Consider the difficulties facing any international agency wanting to improve conditions in informal settlements. There is usually no data on who lives there and on the deficiencies in provision for water, sanitation, health care, schools, emergency services and much else besides. Most residents have no title to the land they occupy and their right to be there is often contested. Official household surveys do not provide data on informal settlements; they only collect data for a national sample. Census data, if collected in informal settlements, is not available at ward, sub-ward or street level so does not fill the information gap. There are usually no maps and often no street names. Professionals may worry about their safety – or in large informal settlements about getting lost” (Satterthwaite, 2018)

Oxfam GB recognised these challenges in their ‘Getting Ready for The Century Of The City: 2013-2016 Urban Framework Report’ which noted a ‘bias against urban’ within the organisation. It acknowledged limited investment in urban programming:

“urbanisation of poverty and suffering is a missing story within Oxfam. It is very optimistically estimated that 10% of Oxfam GB’s non-emergency funds are directed towards urban programmes” (Oxfam, 2012, p1)

A workshop of 40 senior international non-governmental organisation (INGO) representatives noted:

“Many INGOs, more comfortable in rural settings, have not begun to adapt their poverty reduction strategies to the rural-urban demographic shift underway in developing countries, much less integrate a response to these new developments. This is another leading edge for the work ahead” (Moser et al, 2007, p20)

Several initiatives have addressed the need for data from urban informal contexts. For example Desinventar gathers risk knowledge from mixed sources including newspaper and other media reports published locally (Desinventar, undated). Slum/Shack Dwellers International (SDI) operates in over 7000 informal slum areas in 200 cities, using local enumerators to gather data populating its ‘Know Your City’ database (SDI, undated).

This paper’s study focuses on the ‘Views from the Frontline’ (VFL). ‘Action at the Frontline’ (AFL) and ‘Frontline’ data gathering programmes conducted by the Global Network for Disaster Reduction (GNDR), which also engaged local enumerators, gathering data from local respondents (Views from the Frontline, 2019). GNDR emerged in 2007 as a network of local level civil society organisations collaborating on data gathering and campaigning in relation to disaster risk reduction. Its data gathering programmes, established in 2009, recorded perceptions of risk at community level across communities in 48 low and low-middle income countries; with the ability to disaggregate data, for example as here to focus on urban informal contexts. As discussed within the paper, during iterations of the programme, data gathering shaped to external frameworks and priorities gave way to data gathering framed by respondents’ own priorities, which enhanced its ability to develop

understanding of dynamic informal urban contexts by reducing the filtering of presuppositions about such localities.

The programmes assume that acquiring knowledge of these formerly opaque contexts will provide a basis for appropriate action, directly by civil society organisations and indirectly through advocacy addressed at other relevant institutions. The case demonstrates instrumental benefits of the programmes through a dual impact at local, wider subnational and national levels and also reflects critically on limitations of tactical approaches based on the maxim ‘sunshine is the best disinfectant’ (Fox, 2015). It foregrounds questions of power and its ability to bar or refashion knowledge. In terms of the data justice model this case study considers ways that gathering and application of data in urban informal contexts may be undertaken justly or unjustly in relation to those contributing the data. In particular the focus is on structural (do interests and power in wider society support fair outcomes) and distributive (who gets what) data justice (Heeks and Shekhar, 2019). Its findings also discover instrumental data justice effects – in other words fair use of data, resulting in positive impacts for those who contribute data – as a notable aspect of these programmes is the initially undervalued role of small data looped back at local level, which was seen to lead to enhanced social agency in urban contexts such as Delhi, India; Limbe City, Cameroon and Kathmandu, Nepal, whereas the big data aspect directed at institutional contexts proved more problematic.

The paper proceeds through the background, which considers earlier means of applying data in social development and outlines a framework for considering the effects of different forms of knowledge and power on such applications. It continues with discussion of the qualitative methods used to gather and analyse the data forming the case study, and explores findings from this data, considering the effects of the VFL, AFL and Frontline methods at local and other scales. The discussion and conclusions explore the contribution of this case study to understanding the role of data gathering methods in informing CSO roles in informal urban contexts and consider these through a data justice lens.

B. Background

This case focuses on the data justice implications of gathering data locally to support advocacy for social development, focusing on urban informal contexts. These are areas of cities fed by inward economic migration and other forms of internal displacement and characterised by lack of registration, lack of rights to accommodation, informal economic activity, rapid unmanaged growth, poverty and consequent vulnerability. These characteristics mean data and actionable knowledge are difficult to secure. Yet, at present, we understand relatively little about methods for CSOs to acquire actionable data concerning urban informal contexts. There has also been limited analysis of data gathering methods in such contexts and limited work on considering such actions through the lens of data justice, asking whether data which is gathered is used sensitively and ethically to the benefit of its contributors. This case study seeks to address some of these lacunae.

Data, in the broadest sense, has been gathered locally to support social development in many ways, predating digital and social media technologies. Much of this work was

considered under the umbrella of 'Communications for Development' where media included print, audio, radio, photography, film and video. Taking as an example the application of film and video, groundbreaking work was conducted between 1968 and 1970 by Donald Snowden and colleagues with the Fogo Islanders of Newfoundland (becoming known as the 'Fogo Process') to document and share experiences of individuals' lives and bring this material before government to advocate for change and support (Quarry and Ramirez, 2009, p72-78). What drew attention to the project was the intention to bring, with relative transparency, local knowledge to other scales.

Many other projects drew on this initiative, capitalising on increasingly accessible technology so that whereas Snowden's project used 16mm film with associated costs and complexities of processing, editing etc, a participative project undertaken by Braden (2003) on behalf of ActionAid using mini digital cameras and laptops was able to bring the medium closer to the participants. The process was similar to Snowden's in that the local conditions of villagers in rural Malawi were documented and then presented regionally to political leaders. As with the Fogo process this work raised questions concerning the participation of those contributing knowledge. Braden (2003, p36) reflected that:

"Methodologies of participation (RRA, PRA, PLA¹) are routinely used but the outputs are seldom debated and analysed by either participating communities or facilitating development workers. Rather they play a token role in the credo of participatory development, or, at best they offer fieldworkers some background information, and, in the case of ranking, some way of offering a semblance of democratic choice and decision-making."

A wide range of participatory methods of the types referred to by Braden are deployed by CSOs at local level (see for example the collection of community risk assessment methodologies (Provention, undated)). Typically results are held locally and not aggregated. Braden's concern about the application of data gathered in this way echoed an increasing groundswell of concern about the nature of participation in development, highlighting the tendency for supposed participation to become a performance to validate pre-programmed interventions. The conference and associated collection 'Participation: the New Tyranny?' (Cooke and Kothari, 2001) explored this problem in some detail, predating questions of data justice in relation to handling of digital data gathered from local participants.

A large scale approach to participatory data collection aggregated into a global report foregrounded further questions about the acquisition and application of local level data. 'Voices of the Poor' (Narayan, 2000) was a large scale study which looked through the local end of the telescope, aggregating 78 participatory assessments from 47 countries to combine a total of 40,000 voices, analysed qualitatively to inform policy via the platform of the World Development Report 2000/2001. Two research studies were conducted on this project, McGee and Brock (2001) consider the Voices of the Poor case, comparing it with an Oxfam initiative, and finding in both that policy is formulated on the basis of the agency of policy actors, only peripherally informed by the technical data gathered. Brock *et al* (2001) move on to consider power, knowledge and the nature of political spaces in the framing of

¹ Three widely used appraisal methods: RRA is rapid rural appraisal, PRA is participatory rural appraisal, and PLA is participatory learning and action.

poverty policy. The study focuses in on the nature of political spaces in which dominant narratives are either reinforced or disputed, drawing on earlier work by Gaventa to suggest that 'invited spaces' opened by powerful institutions are able to reinforce dominant narratives, reflecting McGee and Brock's finding that political rather than technical perspectives shape poverty reduction policy. They also identify more 'autonomous spaces' created from below where experiential narratives such as those gathered participatively may be heard and may shape policy and action. The overall message is that simply gathering and analysing data is not sufficient to influence and shape policy. Such data can only achieve influence where they run in synchrony with the dynamics of power or, if not, where those dynamics of power are addressed.

Analysis of the effects of participative processes and their application in gathering and aggregating local data has highlighted similar issues to those emerging from more recent analyses of data gathering initiatives drawing on the data justice framework; for example in Heeks and Shekhar (2019), which discussed four pro-equity data initiatives gathering data from marginalised urban contexts. Issues include barriers to 'instrumental data justice', 'distributive data justice' and 'structural data justice'² resulting from the exercise of power in political spaces. This therefore sets the scene for consideration of the case of 'Views from the Frontline' and the other GNDR programmes that were intended to gather and aggregate local data in order to influence national and international policy. The case will demonstrate a range of challenges to CSOs in achieving policy influence at different scales. It highlights that tactical approaches reflected in the 'sunshine is the best disinfectant' maxim are insufficient. The case study aims to investigate a gap in understanding of the role of data in informing policy and action in urban informal contexts, considering more strategic approaches to its application and in doing so identifying the role of 'small data'.

The framework used as a basis for analysis is a power/knowledge matrix (Gibson, 2019) (Figure 1), which draws on Gaventa's idea of political spaces articulated in Brock *et al* (2001) and in his 'power cube' (Gaventa, 2005). This forms the basis of the 'power' axis of the cube:

- *Closed spaces* are easily understood as functioning behind closed doors, where those holding political power are able to make decisions without reference to other stakeholders.
- *Invited spaces* are those in which a range of stakeholders are able to participate. However in such places the powerful host still has control of who speaks and who is silent, what weight is put on different contributions and what conclusions are drawn from the process, so the power of the invited participants is often extremely limited.
- *Created spaces* are those not constrained or controlled by powerful actors but established by a range of stakeholders through drawing together partnerships and collaborations, therefore allowing them to make significant contributions and to shape outcomes.

The knowledge axis reflects findings from McGee and Brock's (2001) study and investigation of the nature and relevance of situated, scientific and political knowledge (Gibson, 2019).

² Defined, respectively, as "fairness in the results of data being used" (instrumental), "the (in)equality of data-related outcomes" (distributive) and "the degree to which the interests and power in wider society support fair outcomes" of handling, use and impacts of data (structural) (Heeks and Shekhar, 2019, p995).

- *Situated/Local knowledge* is that which is held by individuals and socially, based on experience. Such knowledge is contextual and specific, and often not formalised but shared verbally.
- *Scientific/Technical knowledge* is the result of formal knowledge production methods in educational, scientific and technical institutions. It is often regarded as having greater weight than situated/local knowledge.
- *Political/Institutional knowledge* is actionable knowledge often informing policy and action which results from the political interpretation of scientific/technical knowledge and to a much lesser extent situated/local knowledge. In many contexts this has greater weight and influence than other forms of knowledge.

The matrix identifies two extremes:

- At top left, knowledge is defined institutionally, through interpretation of scientific/technical and situated/local knowledge in line with institutional priorities, and this is applied in closed spaces to impose preferred political priorities. Local actors therefore make very limited contributions of knowledge and are shut out of decision-making processes.
- At bottom right, socially created and applied knowledge is that which is derived primarily from situated/local sources and which is applied in created spaces in which a range of stakeholders have power and influence. They are therefore able to bring such knowledge to bear to shape outcomes in line with their concerns and priorities.

These two extremes contrast the institutional imposition of power and manipulation of knowledge with social creation and application of knowledge. The shading of the matrix implies a spectrum of applications of knowledge and power in different contexts.

The framework is employed to investigate barriers within the CSO community to achieving the different forms of data justice, particularly in the poorly understood arena of informal urban communities.

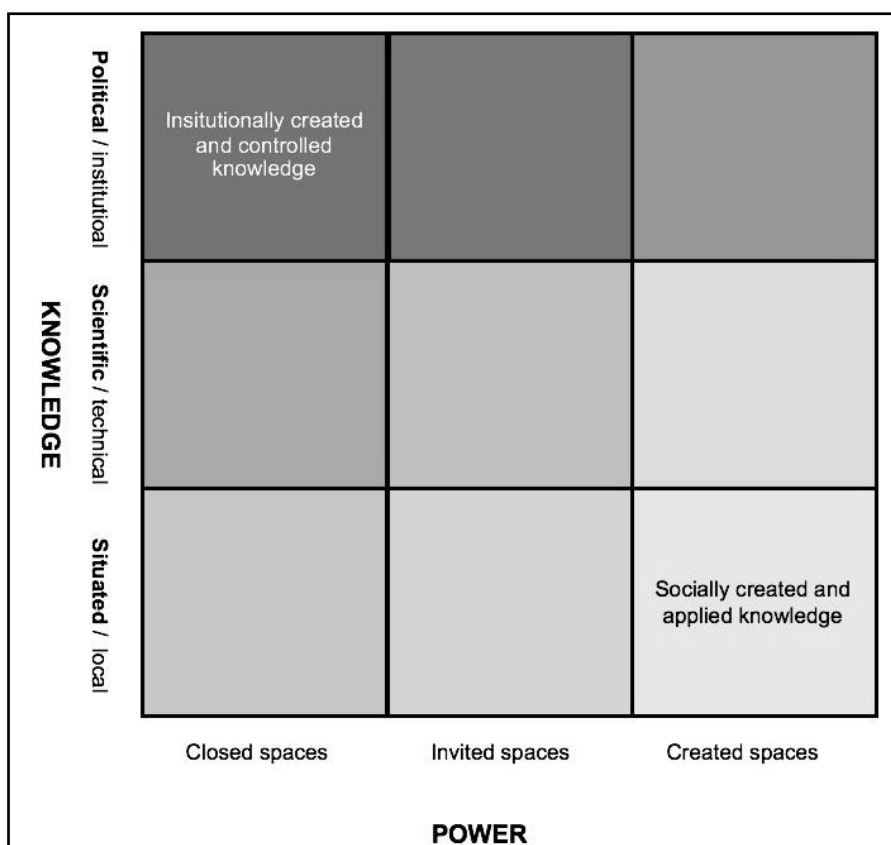


Figure 1: Power/knowledge matrix

The matrix identifies different kinds of space where knowledge and action interface, with differing power relations. Concerning the power axis invited spaces are more seductive to social actors than are closed, as they offer the appearance of participation, though as the framework highlights this appearance is typically illusory as the powerful hosts shape involvement and outcomes. Gaventa suggests that engaging with formal politics by invitation into spaces controlled by institutions does not confer power but co-opts the participants within the existing system. He therefore suggests that power relationships are only disrupted in ‘created spaces’ which step outside current structures and confer agency on participants. The knowledge axis acknowledges the privileging of political/institutional knowledge over situated/local knowledge which, though undervalued, is critical given the increasing recognition – for example in the capabilities approach (Sen, 1999) – that development depends on context-specific and multi-dimensional understanding.

The dimensions in the power/knowledge matrix can be related to those highlighted by Heeks and Renken (2018) in their discussion of structural data justice (Figure 2):

Framework	Knowledge/Data	Spaces/Structures
Power/Knowledge Matrix	Political ↔ Situated	Closed ↔ Created
Structural Data Justice	Big data ↔ Small data	Structure ↔ Agency

Figure 2: Comparing power/knowledge matrix and structural data justice

Attempts to affect structural and distributive aspects of data justice are seen, according to this schema, as requiring shifts in the matrix between the upper left and lower right zones,

which signify transition from large institutionally controlled datasets and analyses controlled by those power structures to ‘small data’³ accessed locally and supporting agency (agency = power to, structure = power over) (see Figure 3).

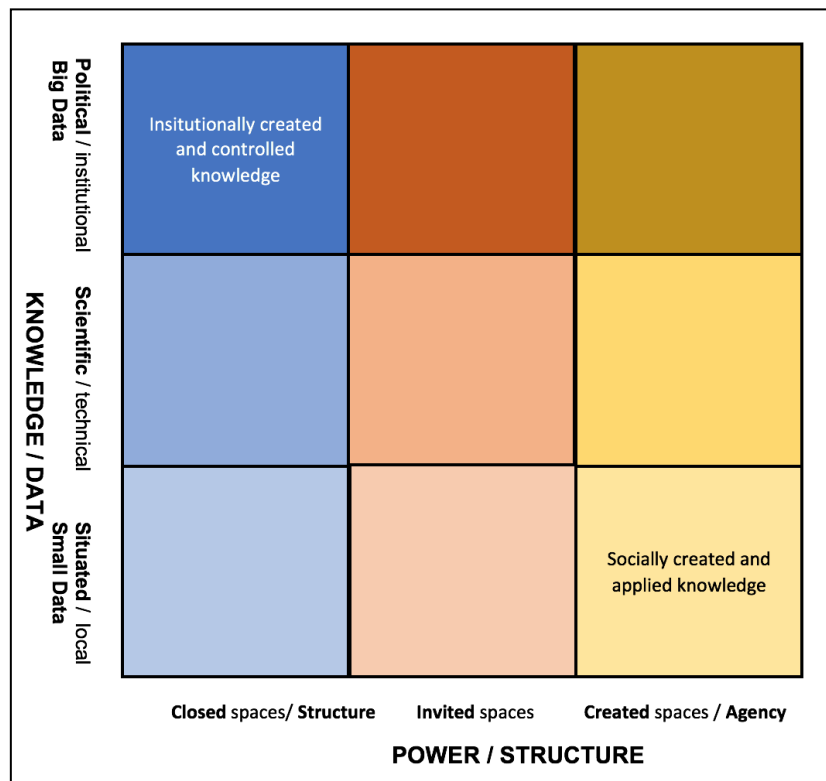


Figure 3: Power/knowledge matrix including structural data justice dimensions

C. Methods

The method adopted in analysing the case is action research, from a participant observer perspective. The author was a co-director of GNDR and the project leader from 2008-2016 (with continuing ad hoc involvements) on development and deployment of the three programmes mentioned earlier and considered in this case study:

- ‘Views from the Frontline’ used a questionnaire method to gather local perceptions of progress in disaster risk reduction. It was initially conducted three times: in 2009, 2011 and 2013. Another VFL was then undertaken in 2019.
- ‘Action at the Frontline’ added a local level participatory process for communities to interpret data, identify and undertake actions, and was undertaken between 2011 and 2015.
- ‘Frontline’ was a further development which strengthened local level knowledge gathering and application of data for local action; from 2013 to 2017.

The author conducted doctoral research 2008-2011 (Gibson, 2012) on the network and its programmes concurrently with his tenure, creating a space for formalised critical reflection

³ Small data is used here to describe datasets gathered locally which are unlikely to be sufficient in scale for quantitative statistical analysis but are sufficient in either quantitative or qualitative terms to be drivers for local usage through dialogue and negotiation.

on action. His approach is rooted in the thinking of Freire, whose ‘participative action research’ was based on social participation in action and reflection:

“. . . reflection – true reflection – leads to action. On the other hand, when the situation calls for action, that action will constitute an authentic praxis only if its consequences become the object of critical reflection.” (Freire, 1970, p48)

Related approaches include ‘action science’ (Argyris and Schon, 1989) and ‘co-operative inquiry’ (Heron, 1996). All have at their heart close engagement with the action scene allied to individual and corporate critical reflection on action. Therefore they are likely to lead to informed adaptation of the action, following the principle of the Kolb (1984) cycle of experiential learning, as well as generating research outputs. This was the case as will be seen in the evolution of the programmes under consideration.

GNDR, established in 2007, had a very small secretariat of two staff, including the author. Lacking accumulated bureaucracy it had considerable flexibility to perform real collaborative experiments in pursuing its goals. The research interests of the author were understood by the network secretariat and membership, creating opportunities for ‘member check’ (Yin, 2003) on provisional conclusions reached by the researcher. Management of the role therefore applied an integrated ‘reflective practitioner’ approach (Schon, 1983), while collaboration with other members of GNDR reflected the principle of Heron’s co-operative enquiry (Heron, 1996).

The case draws on six types of data gathered through the action research:

1. **Background and context:** archive and historical sources primarily from the network and from the UN agency responsible for implementing the International Strategy for Disaster Reduction (UNISDR, now the UN office for Disaster Risk Reduction: UNDRR).
2. **Qualitative data on network interactions:** email correspondence; online discussions; surveys and questionnaires; GNDR reports and presentations.
3. **Network praxis:** data from the three VFLs conducted in 2009, 2011 and 2013, the AFLs from 2011-2015 and Frontline 2013-2017; learning reviews undertaken on VFL in 2009 and 2011; records of GNDR global workshops held in 2009 and 2013.
4. **Observational data and reflection:** personal records and narrative; research doctorate and subsequent research papers.
5. **Structured collaboration:** through co-production and critical discussion with a group of small NGO leaders, creation of case studies of local knowledge gathering and action, compiled in a journal special issue (Gibson and Norton, 2019) and a dedicated website (www.drr2dev.com).
6. **Fieldwork:** in the Philippines, meeting with CSO representatives and CSO networks (2019) who had been involved with the GNDR programmes, in order to provide insights and updates on the Philippines material considered in this case study.

D. Findings

In this section, several phases of implementation of VFL, AFL and Frontline are examined and related to the power/knowledge matrix as a means of investigating the contribution of the case to understanding the application of data by CSOs in urban informal contexts through a data justice lens. The initial implementation of the VFL programme is described, showing the challenges in applying data for desired impact and in line with local expectations which led to the further development of AFL and Frontline. Applications of Frontline in three specific urban informal contexts are discussed, along with more general outcomes locally, nationally and internationally. Further structural challenges are considered, leading to another revision of the programme in 2019.

D1. Implementation and Development of the ‘Views from the Frontline’ Programme

GNDR was established with a goal of influencing disaster risk reduction frameworks established by UNISDR. The Hyogo Framework for Action (HFA) spanned 2005-2015, followed by the Sendai Framework for Action (SFA). GNDR had a stated intention to roll out a local level assessment of progress focussed on implementation of the HFA. This bottom up assessment would complement the top down attempt by the UN to monitor implementation of the HFA (Gibson and Wisner, 2016). GNDR’s method employed a questionnaire with approximately 40 questions related to the five priorities of the HFA, with responses scored on a five point Likert scale.

Versions were created for community, CSO and local government respondents. GNDR member organisations organised, mobilised and conducted the surveys in 2009 based on training by the network. 5290 responses were gathered from the respondent groups and a further 2035 from women’s and children’s groups. 48 countries in Africa, Asia and the Americas were covered. Data were analysed to produce a range of summary charts which were included in a report presented to the UNISDR biennial conference monitoring progress of the framework. The purpose of doing so was advocacy, so the focus was on key messages drawn from the data.

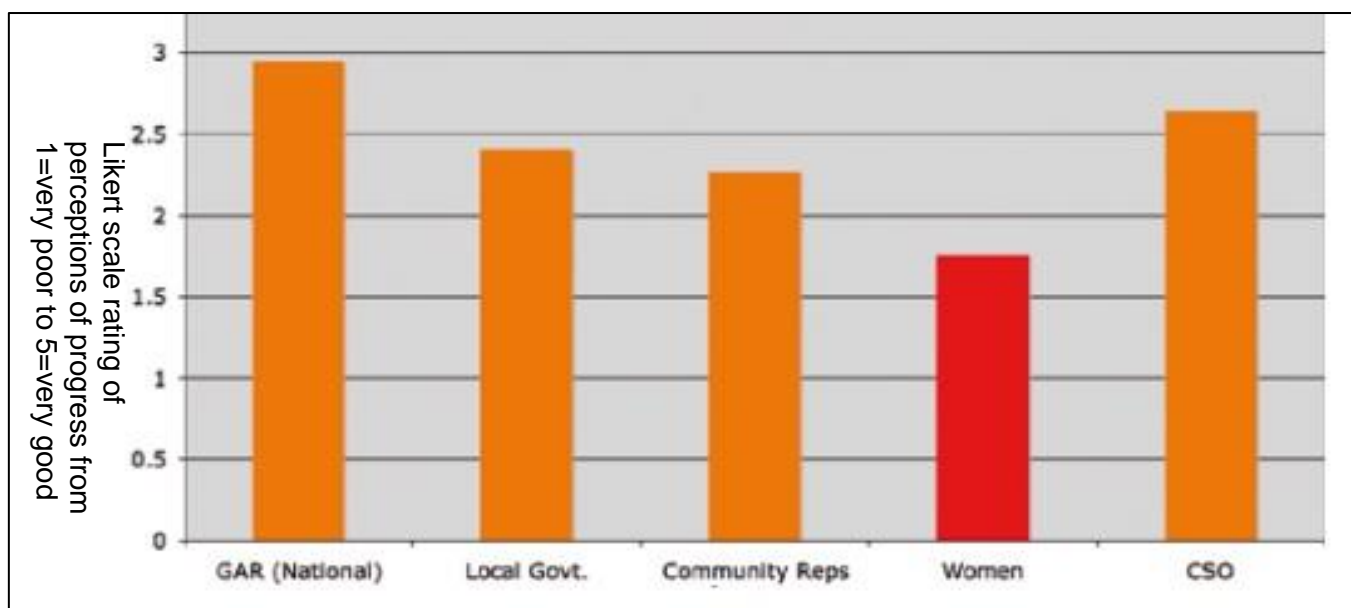


Figure 4: A breakdown of different responses to HFA progress showing ‘fading-out’ of perceptions of progress from national level to communities ‘at-risk’⁴

For example, Figure 4 was used to support the contention that experience of the impact of the disaster reduction framework was greatly reduced at local level compared with national level reporting. It also specifically emphasised the particularly negative perception of women, highlighted in red. The report attracted a lot of attention and coverage, effectively presenting a body of data to underpin the key messages. The then head of UNISDR said of it:

“Thanks to that report there is now a face, a recognition and an understanding of what you represent. Not because you are NGOs or civil society but through what you have done. The work you have done and you’ve put that forward. My feeling is that you have done something quite remarkable through that work.”

(Margareta Wahlstrom: UN Assistant Secretary for Disaster Risk Reduction, speaking at Global Workshop 27 January 2010. In Gibson, 2012, p157)

However it became clear that the messages and language put forward by the network, including the terms ‘Views from the Frontline’ and ‘Local Action’ were rapidly appropriated by UNISDR, who in the preparatory material for the following progress conference said:

“The Global Assessment Report 2011 recognizes local perspectives and incorporates “ Views from the Frontline” from civil society organizations. But, to what extent do our interventions lead to improved conditions in the places where the vulnerable live and work? Are all our programs and policies targeted enough at supporting local action and building on local assets? How can we accelerate finance and increase investment in local action? What do we need to do to make this happen?” (Extract from second announcement of UN Global Platform for Disaster Risk Reduction, 17 November 2010. UNISDR, 2011. In Gibson, 2012, p177. Emphasis added.)

⁴ GAR is the Global Assessment Report of progress in implementation of the UN Disaster Risk Reduction frameworks, which is published biennially. The assessment of progress in the chart associated with GAR is based on self-assessment by responsible ministries within national governments.

This appropriation might have been regarded a success if it led to demonstrable change in policy and practice. However, the chair's statement at the conclusion of the 2011 conference did not indicate any such change in policy; the messages appeared, rather, to have been absorbed within the established policy formulations.

Views from the Frontline was conducted using a similar format and methodology in 2011, with increased participation of 20,000 respondents in 69 countries, and in 2013, with 21,500 respondents in 57 countries. However learning reviews conducted with participating member organisations revealed disquiet about the value of the process (GNDR, 2012). The term "extractive" was used, and one organisation asked how the circle of returning the information for use by the people who provided it (what would later be seen as a 'small data' approach) could be completed. These responses highlighted a practical concern about the direct usefulness of the exercise to the respondents. Responses to the VFL surveys were markedly homogeneous leading to the suggestion that respondents did not have access to information to assess the questions being posed. It was recognised in discussions within GNDR that the method elicited local views on the HFA framework, but did not allow local articulation of experience and knowledge. A local level respondent said of similar surveys that they asked "what do you think about our framework?" rather than "what do you think?". This and other feedback prompted an assessment and redesign of the programme, based on local participative risk mapping, with the intention of emphasising local knowledge and creating outputs which would also have local relevance.

The Views from the Frontline programme had aimed to engage in closed and invited spaces such as UN conferences, offering in relative terms 'big' data related to the institutional knowledge contained in the UN frameworks, created through political negotiation by signatory countries. It is thus located in the top left of the power/knowledge matrix (see Figure 5).

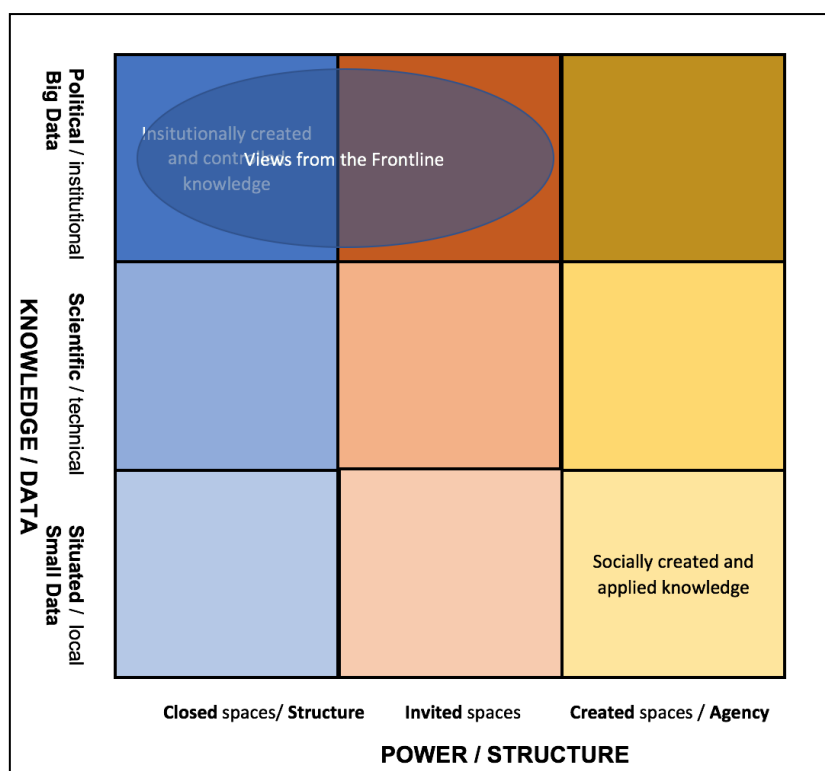


Figure 5: Views from the Frontline positioning in power/knowledge matrix

As with the assessment of uptake of knowledge from the ‘Voices of the Poor’ survey (McGee and Brock, 2001), political priorities were overlaid on the findings and as a consequence their influence on policy and implementation was slight. Structural data (in)justice was at play here as the system within which GNDR attempted to secure influence was structurally unreceptive to challenges to its policy orthodoxy, and was able to utilise aspects of its assemblage such a control of spaces for discourse and control of language to maintain stasis. Alongside the structural challenge there was an internal challenge as the membership questioned the distributive and instrumental data justice of the programme, complaining that it was extractive and did not have direct local benefits.

External and internal challenges to the programme prompted assessment and redesign. The secretariat suggested this should be based on local participative risk mapping, an activity with a long pedigree in supporting community participation and action. It would have the intention of emphasising local knowledge and creating outputs which would also have local relevance.

D2. Development of the Frontline Programme

The format, titled ‘Frontline’, which emerged from development work by the network secretariat and initial piloting of the programme in Peru in 2013 was conceptually related to local level participatory assessments discussed earlier. It differed in three ways. Firstly it was highly simplified, reducing the scale of training of the enumerators to enable it to be widely deployed. Secondly the consultation, based on a structured conversation leading to the respondent nominating their highest priority threats, consequences, actions and barriers,

allowed free text responses so that respondents could express their own insights rather than responding to a questionnaire. Qualitative analysis coded the free text responses in order to aggregate them. Thirdly the prioritisation process allowed data to be aggregated at local level (for local application) and also at subnational, national and international level. These design aspects met the requirements identified in learning reviews for a process which allowed local knowledge to be gathered, allowed that knowledge to be used locally, but which also provided a larger-scale analysis to be used in national and international advocacy.

Figure 6, below, contrasts the epistemic focus of the Frontline programme with that of Views from the Frontline, showing that Views from the Frontline (blue) is driven by an external framing, whereas Frontline (orange) is driven by local perceptions and knowledge.



Figure 6: Contrasting the epistemic focus of ‘Views from the Frontline’ and ‘Frontline’

As a further effort to ensure local relevance of the Frontline programme, a companion programme, ‘Action at the Frontline’ provided a framework for community consultations, action planning and implementation based on the locally analysed Frontline data. At other scales the data was analysed and then visualised using a ‘Tableau’ interactive online visualisation platform (Figure 7) which allowed the data to be sliced and diced by locality, risk zones, and by particular threats, consequences, actions and barriers⁵.

⁵ The Frontline tableau interactive data platform can be accessed at <https://gndr.org/tableau>.

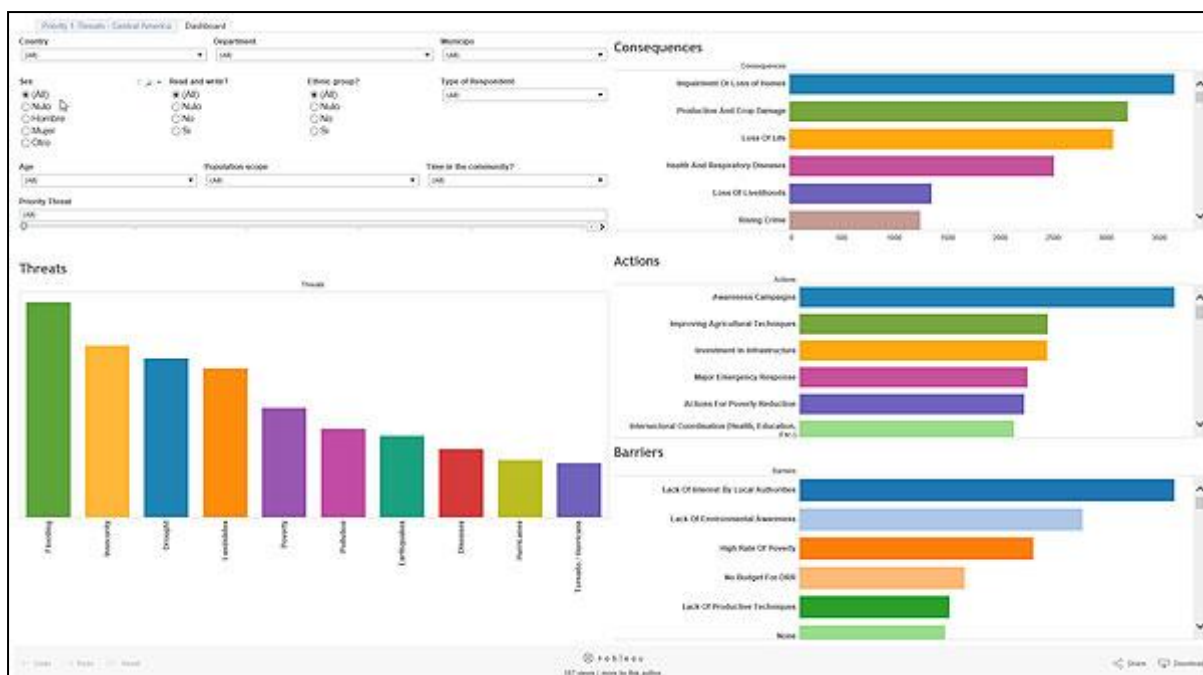


Figure 7: The Frontline tableau interactive data platform

D3. Applications and Impact of Frontline

Data gathering and application in informal urban contexts in East Delhi, India

Case studies and anecdotal evidence indicate that the application of data locally through community consultation and action were valued by the local NGOs involved in the programme. The implementation of the programme in India is used to illustrate this. It was focused on Assam, Bihar, East Delhi, Odisha, Tamil Nadu and Uttarakhand; localities selected to represent a range of risk zones. The analysis and report (SEEDS, 2016) aggregated data to indicate priorities in different risk zones. Figure 8 contrasts the threats prioritised by respondents in rural and urban risk zones:

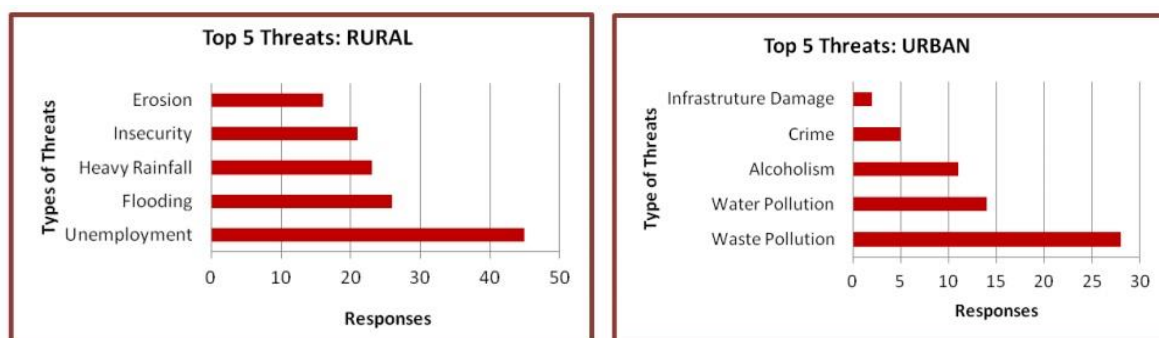


Figure 8: Urban and rural priority threats according to Frontline India

In line with findings from the 21 countries involved in the programme, risk profiles were found to be very context specific, which in itself underscored an important message addressed to institutional actors above moving from large scale towards local, context

specific actions in implementing disaster reduction policy. The report provided further detail on each zone. Findings for East Delhi stated:

“Waste and water pollution, alcoholism, crime (again mainly women respondents) and infrastructural damage were identified as the greatest threats. Violence (physical, domestic, sexual, child abuse); blocked roads from garbage and rain; psychosocial impacts; and lack of clean drinking water were some of the direct consequences adding to the threats. The primary barriers perceived were lack of community’s commitment; followed by the fear of reprisals (both within the community and with concerned authorities), unplanned urbanization: clustered shacks next to highways or on the streets without clear drainage system and highly limited spatial scope, poor sanitation and hygiene and poverty”
(SEEDS, 2016, p21)

Data gathering and analysis in East Delhi underpinned and reinforced local action which included establishing community associations, one of whose actions was local level data gathering using a mobile phone app to document and report local hazards such as garbage accumulations and unsafe electric cabling (Gupta *et al*, 2019). Generation and application of data in this way addressed a particular political challenge experienced in informal urban communities, where the lack of registration and voting rights amongst such populations makes them a low priority in the eyes of local political leaders. The campaigning and advocacy leverage created by making the limited services provided in urban informal areas more clearly visible in the public eye through gathering and aggregating data – naming and shaming – provoked greater action on the part of the local government (pers.comm. Gupta, 2017)

Data gathering and application in informal urban contexts in Limbe City, Cameroon

Frontline’s focus on accessing local knowledge and experience directly, rather than consulting respondents in relation to an external framework enabled it to provide specific contextual understandings of complex social contexts in urban informal settlements. The Frontline data gathering and analysis process was applied in Limbe City, Cameroon. A coastal city exposed to climate related disasters and also vulnerable to eruptions from nearby Mount Cameroon, the levels of poverty in informal areas of the city led to a range of other more pressing disaster impacts. These were revealed in the responses gathered through structured interviews.

Aggregated responses revealed the highest priority threats faced by the local population: seasonal flooding, coastal erosion, fire, landslide and poverty. In one low-lying area, Lower Motowoh, discussion of these findings led to agreed community actions to address clogging of the main watercourse because of poorly managed waste. Actions combined clearing the watercourse and promoting better waste management. Initial disinterest from local government and resistance from some community members were influenced by the visible actions and the resulting reclamation of low-lying land which was now habitable and led eventually to greater community participation and government support. The process of data gathering and presentation therefore triggered an iterative process engaging both community and government (Wong and Aka, 2019)

Data gathering and application in informal urban contexts in Metro Manila, the Philippines

One of the world's mega-cities, Metro Manila has a population of over 21 million and is growing rapidly. Within sight of the city's skyscrapers many settlers have moved in to urban informal areas along the city's waterways, living in cramped, hazardous, often temporary accommodation. Due to their informality, estimates of the scale of this population are approximate, ranging from 104,000 families (CDP, 2015a) to one million people (pers. comm. Lorna Victoria, CDP, 2019)⁶.

The city government put forward mass relocation of populations as a resolution of the problems faced by these residents. However the proposed locations are relatively remote from the city, dislocating people from their communities and creating huge problems in either commuting back into their workplaces or securing other livelihoods. Residents have therefore resisted this strategy.

The Action at the Frontline local level data gathering process identified a range of threats faced by residents and also highlighted their interlocking nature (CDP, 2015a):

- Disaster: flood, fire, earthquake, garbage
- Economic: lack of jobs, difficulty in finding a job, vices due to lack of economic activities
- Peace and order: youth riot, use and selling of illegal drugs
- Social cohesion: gossip, fights
- Housing and relocation: landlessness

These findings were played back to meetings which included community members and also representatives of local organisations and local government. These meetings were the starting point for developing a community plan to effectively and efficiently reduce the threats. A field visit by the author in 2019 including meetings with CDP revealed that progress is slow, suggesting further iterations of such data gathering and dialogue processes are needed.

Overall impacts of the pilot programme

Frontline implementation and associated local 'Action at the Frontline' case studies during three pilot phases of Frontline were conducted in 30 countries in Latin America, Asia, Africa and the Caribbean. The last of these phases, spanning 15 countries, was linked with local 'Action at the Frontline' in 11 countries. Outcomes at local and national level are summarised below:

Locally the case studies of action based on the local analysis of Frontline data indicate that this locally co-created knowledge was applied to inform and motivate local action. Cases in India, Cameroon and the Philippines have been detailed above. In Indonesia local priorities for action contrasted with institutional perceptions leading to a focus on livelihoods based on strengthening tourism as a means of reducing illegal activity which created risk. In

⁶ CDP is the Centre for Disaster Preparedness, a national NGO based in Manila, the Philippines.

Kiribati the activity led to establishment of multi-stakeholder partnerships capable of organising mangrove restoration and other risk reduction activities. In Malawi a respondent cited the benefits of action focused on local priorities as a contrast to the more usual project-based activities defined by external funders. The overall assessment of the cases was that they stimulated local level collaborations based on local priorities.

Regionally the Frontline report in India (SEEDS, 2016) was used as a basis for multi-stakeholder consultations. In the Philippines the programme produced detailed reports in six regions which were presented nationally (CDP, 2015) and also triggered regional collaborations for action, notably in Carles region where a substantial multi-stakeholder collaboration was developed to drive development in the region (Molina, 2019).

Nationally some evidence was recorded of impacts of the data. During these pilot phases respondents reported using aggregated data to influence government policy for risk reduction in Chile, Columbia, Kiribati and Paraguay (Gibson and Wisner, 2016). In Indonesia the participating CSOs reported that presentation of Frontline data and reports at the national platform (PLANAS) and the National Disaster Management Agency had led to inputs to the national and regional disaster risk reduction policy (YEU, 2015).

Assessing this phase of the programme in relation to the power/knowledge matrix suggests that focus had shifted to the bottom right hand corner, where situated knowledge was engaging in created spaces (see Figure 9).

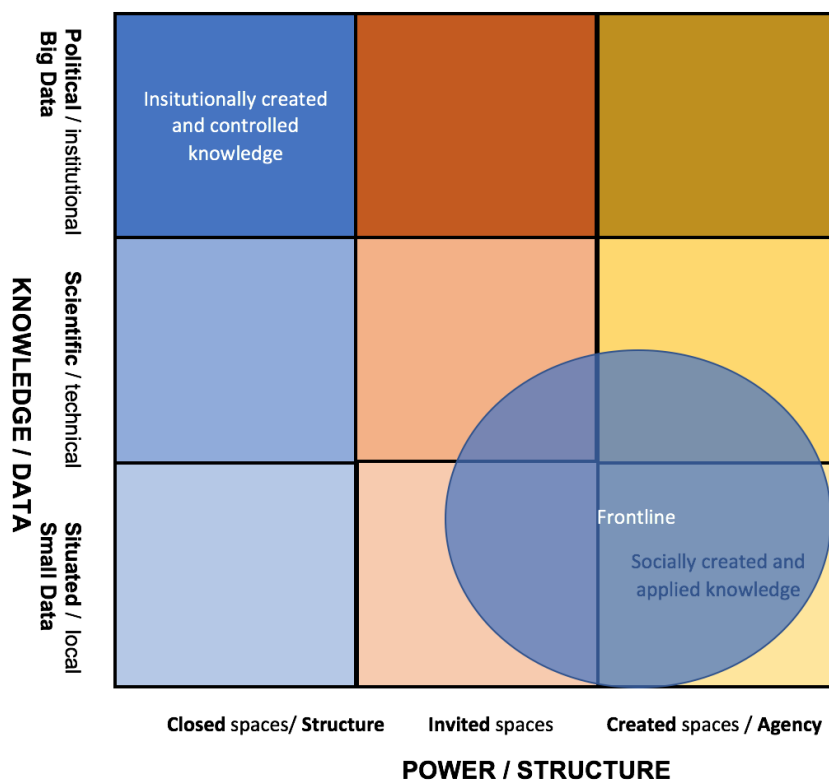


Figure 9: Frontline positioning in power/knowledge matrix

This was ‘small’ data gathered, analysed and used locally (though also aggregated into larger databases for national/international use) and its local application was in contexts where participants had some agency, and indeed sometimes increased their agency through cycles of action. In some case studies the uptake of data drove a cycle of increasing local participation and emerging engagement with other actors such as local and national government, engaging in invited spaces – those where the hosts normally exerted control over proceedings and outcomes – and in scientific/technical discourse – where situated/local knowledge is often discounted, as illustrated in Figure 9. Engagement in these spaces appeared to occur disruptively, through ‘legitimate subversion’ rather than within accepted institutional framings as capabilities and confidence of local consortia grew iteratively (Gibson *et al* 2019). Thus this local level application of small data appeared to achieve a higher degree of structural data justice than the previous programme, through co-creating a space or structure in line with local interests and priorities. It met the network members’ requests for distributive data justice by providing greater resources for marginalised groups. And the case studies during the pilot implementation offer examples of instrumental data justice, with data stimulating actions and hence impacts in line with local priorities.

D4. Return to Views from the Frontline

Evidence of the pilot phases of the Frontline programme were therefore that it met the network members’ request for a data gathering exercise that had local level application, and there was some evidence that it was also used at national scale to influence policy. The programme was intended to be implemented more widely after the pilot phases. However this phase stalled. Although the GNDR Board and CEO had requested its development, they struggled to understand the approach, feeling more comfortable with the questionnaire based survey. Thus, after internal deliberations GNDR set out to design a new programme, taking the original name Views from the Frontline (GNDR, 2019).

This reflected the desire within the secretariat to be directly assessing the UN Sendai Framework for Action, as the earlier Views from the Frontline programmes had done, and the desire of potential funders to support such an action. However demand from the network’s membership led to the new programme retaining the local level component. Therefore this programme, being initially deployed at large scale in 50 countries over a three-year period, has at its heart the earlier questionnaire style exercise, aimed at conducting a complementary assessment of the UN Disaster Reduction framework, and also in this iteration the Sustainable Development Goals and the Paris Agreement on Climate Change. Alongside this assessment it includes the Frontline-style local level prioritisation exercise, aimed at capturing local knowledge and using it as a basis for local action.

A pilot exercise for this new approach conducted in the Philippines with 2535 respondents analysed findings from the two elements of the survey (CDP, 2018). It showed that distinct risk priorities were identified in different localities and risk zones, and linked these to options for local action and to particular barriers to be considered. As with the earlier Frontline programmes the data gathered locally was actionable. The main finding of the questionnaire style assessment was of a consistent gulf between local community and local government perceptions of progress on all issues considered, with local government

consistently positive and communities consistently negative about progress. This reiterated findings from earlier Views from the Frontline surveys, but raised the question of the utility of this finding, due to the barrier of institutional resistance experienced previously.

The intention in the new programme appears to be to locate the project within two zones in the power/knowledge matrix (see Figure 10).

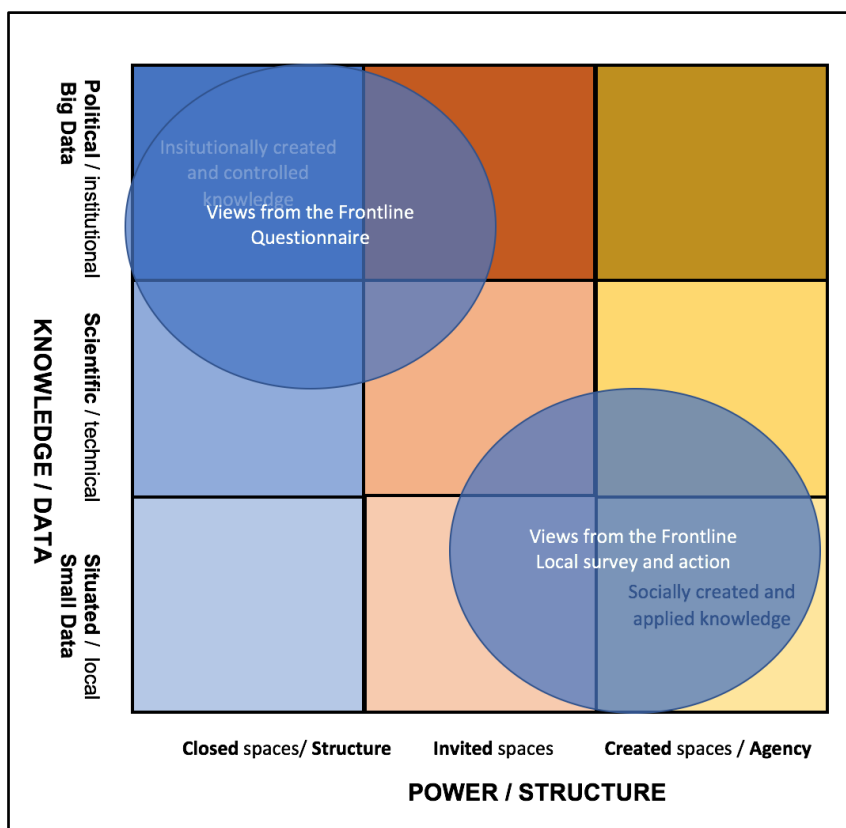


Figure 10: Locating Views from the Frontline 2019 in the power/knowledge matrix

The inclusion of the local level consultations, local knowledge generation and action (similarly to Frontline) is located at bottom right, in created spaces where agency can be exercised on the basis of situated knowledge. The questionnaire element, intended to assess the UN Disaster Reduction framework and also the Sustainable Development Goals and Paris Agreement on Climate Change, does not have any design elements addressing the challenges faced by the earlier and similar Views from the Frontline project. However while the programme may not achieve impact at international/national level it may be strategically necessary to include this element to maintain organisational credibility and funding. It may be that such a pragmatic approach recognises the limitations of structural data justice, therefore including an element previously found ineffective but which is nevertheless necessary to allow the other elements of the programme to proceed, in order to secure distributive and instrumental data justice.

E. Discussion and Conclusions

This case focuses attention on civil society organisations as creators and users of data, and directs attention specifically to urban informal contexts, which it is suggested have been poorly understood by civil society organisations as well as by other institutional actors. Whilst the programmes considered in this study are not exclusively devoted to urban informal contexts it shows that the local level methodology, 'Frontline', is able to gather data explicating very specific contexts, including urban informal, through its open-ended qualitative method, contrasting with a framework-driven questionnaire approach such as that used in Views from the Frontline. There was a transition during the course of the programme from an international to a local focus in the application of data. In the first iteration the destination was international and institutional. In the second iteration the destination was local, the data looped back to its contributors as per the tenets of the small data approach. The contrast is illustrated in Figure 11.

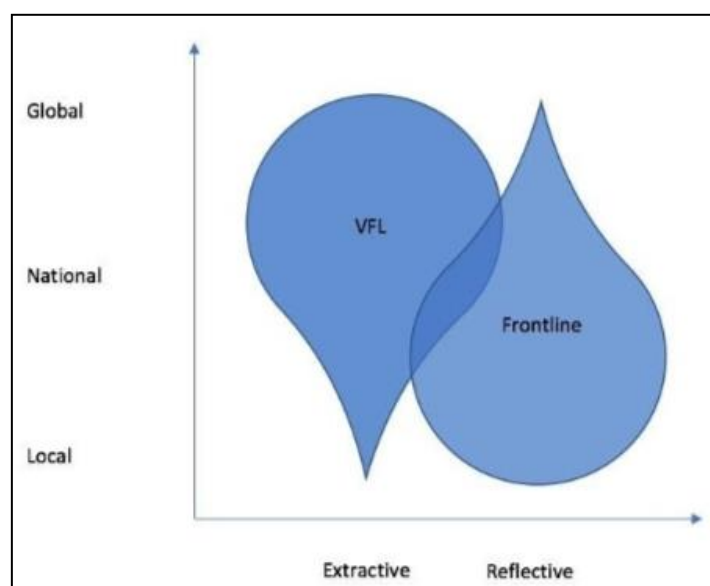


Figure 11: Contrasting emphasis of Frontline and Views from the Frontline

The third iteration, as discussed, includes both local and global elements.

The challenges in achieving institutional influence in the Views from the Frontline programme echo those highlighted by McGee and Brock (2001) and by Brock *et al* (2001) in their assessments of the large scale 'Voices of the Poor' programme. In both cases structural data justice – 'power over' – is in play. As Fox (2015) discusses, tactical approaches are insufficient to achieve influence in these closed institutional spaces. The power/knowledge matrix reflects the dominance of 'political knowledge' over technical and scientific considerations and over the even less privileged place of situated knowledge created locally. In both cases attempts to insert local perspectives and knowledge into the institutional discourse have proved ineffective.

In terms of the disaster reduction discourse Gaillard (2019) challenges an institutional hegemony which imposes an orientalist view of disasters in the prevailing institutional discourse on the topic, therefore failing to hear voices or views from the frontline. He

argues for the importance of local researchers analysing local disasters using local epistemologies, suggesting therefore that it is impossible to bridge a dominant western epistemological perspective with that prevailing locally. This is an extreme position but it does echo the disjunction between community and government perceptions reported by Views from the Frontline (Figure 4) and in the later Views from the Frontline pilot (CDP, 2018). Therefore more strategic applications of data gathering and application must be considered, as Fox also argues.

GNDR's work in piloting the Frontline programme, dealing with small data in created spaces, is located by the power/knowledge matrix in contexts where greater agency is available and/or can be accumulated in the sequence represented below:

Small data → local social visibility → stimulus for social action → social agency

As such this reveals a strategic approach to application of data for development. However this initiative reveals an organisational challenge which can also attach to Gaillard's critique of institutional hegemony, as GNDR has faced pressure internally and externally – related to organisational credibility and funding – to return to the former survey format. This has led to pragmatic trade-offs in which the questionnaire assessment of several global frameworks has been reinstated, now complemented by the local level data gathering and application process. It remains to be seen whether the increased complexity of the resulting programme can be sustained. Piloting has demonstrated that the complexity of the dual approach creates an additional workload. App-based data recording is being developed to reduce this load, so accommodating the politically pragmatic dual approach has come at a cost (pers.comm. VFL project manager, June 2019).

Conclusions: CSOs

The case offers several messages to CSOs considering data gathering and application:

1. The challenges of engaging in institutional spaces, where political considerations outweigh technical and scientific, must be understood.
2. Tactical approaches – sunshine is the best disinfectant – are likely to fail and more strategic approaches should be considered.
3. Application of small data in local contexts creates significant opportunities to contribute to change processes as this data can inform understanding of complex contexts such as urban informal settlements and form a valuable part of iterative processes of action and reflection, incrementally increasing ability to influence local institutions through strategies such as 'legitimate subversion'.
4. Working strategically may entail, as in the case of the Views from the Frontline 2019 iteration, undertaking activities to maintain organisational stature even though these may not be intrinsically effective. That this is the case reflects a reality of structural data justice in systems with dominant and powerful actors.

Conclusions: Data justice model

Structural data justice

The case has highlighted aspects of structural data justice and injustice regarding the application of data gathered through the VFL, AFL and Frontline programmes. It suggests that the imposition of power on knowledge, limiting the impact of data and analysis on policy, necessitates a pragmatically strategic approach which has resulted, in the final iteration of VFL in 2019, in parallel approaches intended to engage in the two extremities reflected in the power/knowledge matrix – institutionally created and controlled knowledge and socially created and applied knowledge. The case can further be seen to suggest that managing structural data justice is a dynamic rather than a static process, requiring iteratively strategic approaches to ensuring structural data justice.

Distributive data justice

The case has shown that even in socially and ethically motivated applications of social data, distributive data justice can be neglected. In the case under consideration it was feedback from network members that highlighted this issue, demonstrating a need to act critically and reflectively in the handling of data, rather than assuming an ‘end justifies the means’ approach.

Instrumental data justice

Iterative learning by GNDR during the implementation period of VFL, AFL and Frontline highlights unanticipated instrumental benefits of these programmes. The call from CSOs, representing communities, for direct local application of the programme led to the ‘small data’ aspect being emphasised, and this in turn led to both ‘process’ and ‘outcome’ benefits from this small data aspect of the programme. Illustrated in the cases from East Delhi, Limbe City and Metro Manila, the process led to instrumental benefits of local engagement, dialogue and collaboration which in turn strengthened local action. There were outcome benefits of influence on local government.

E1. Recommendations

This case study, focusing on gathering data locally and applying it both locally and remotely, highlights the dominance of structural data justice issues and the need to work strategically rather than tactically:

Data to influence institutional discourse

As regards practice it focuses on such activities undertaken by civil society actors and recommends caution in conducting data gathering activities designed to influence institutional policy, recognising the ability of institutions to subjugate such data to their pre-existing discourses.

Data to support local collaboration and action

It highlights the potential of small data gathering activities integrating with local uptake and action, not only in local community mobilisation but in incremental engagement with institutions at local level.

Data to enhance understanding of complex urban informal contexts

It shows that in complex contexts such as urban informal settlements such local knowledge creation is valuable in achieving local contextual understanding, addressing the deficit in such understanding felt by organisations such as INGOs.

Pragmatic organisational strategies to address structural data (in)justice

It also highlights, given the challenges of structural data justice, the necessity to consider such activities within a wider framing which pragmatically considers organisational sustainability given the low value placed institutionally on local, situated knowledge.

Further research

As regards research the case suggests that the dynamics of data justice and injustice in local data gathering and application are of interest. The case tangentially mentioned another local data initiative in East Delhi based on a smartphone app. The expanding range of technologies able to support local data gathering, analysis and application should also be considered, situated within the nuanced understanding of structural data justice emphasised by the power/knowledge matrix. Finally the role of that model in enhancing the understanding of the structural data justice element of the data justice model may be considered, investigating whether it illuminates Heeks and Renken's emphasis on the importance of structural data justice.

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Terry Gibson travelled extensively filming aid and humanitarian work in villages, towns and cities around the world before becoming Operations Director of an international network of over 800 small NGOs. He developed and led a major research programme at the network, which consulted over 100,000 people facing everyday disasters, and combined this with research at the University of Manchester. He continues to research and write on these topics as an independent researcher.