

Building local level engagement in disaster risk reduction: A Portuguese case study

"Sempre em Movimento, Amadora é Resiliente"
"Constantly on the move, Amadora is resilient"

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Introduction

Practitioners working in the field of disaster risk reduction have witnessed a policy shift at all levels of governance toward increased public participation to build disaster resilience. It is commonly acknowledged that to date, top-down approaches to implement the Hyogo Framework for Action 2005-2015 (HFA1), have produced results at the national level rather than substantial disaster risk reduction at local levels (Becker, 2012, UN, 2013; UNISDR, 2012). Using the context of a case study in Amadora, Portugal, this paper examines communicative practices during public engagement initiatives for disaster risk reduction. Literature drawn from disaster management studies, communication, social science and political theory defines terms used in relation to community resilience, leadership and disaster risk reduction, followed by the introduction of public participation literature to demonstrate the centrality of dialogical communication as a means to engage communities in risk reduction. A summary of Portugal's political situation precedes description of the research method, followed by presentation of empirical evidence, analysed within a framework of communication, social and political theory. The paper concludes by identifying conditions that enable and, conversely detract from, level engagement to build community resilience in Amadora, and a discussion of the findings implications for future DRR research and practice.

Community resilience

Although research has produced a variety of models and frameworks that map the characteristics of community resilience, there is a lack of consistency in approaching and operationalising resilience (Alexander, 2013; Cutter et al, 2008; Renschler et al, 2010; Twigg, 2007). The term 'resilience' is considered an outcome when defined as the ability to bounce back or cope with a hazard event and is imbedded within vulnerability; whereas process-related resilience is defined more in terms of involving transformation, continual learning and taking responsibility for making better decisions to improve the capacity to handle hazards (Alexander, 2013; Manyena, 2006). Bene et al (2012) contend there are two approaches to understanding resilience: as a 'capacity to recover' and as a 'degree of preparedness' (p.10). The authors note a shift from a focus on resilience as a measurable outcome of an ability to deal with shocks, to a more dynamic model that encompasses the notion of change and transformation (Bene et al, 2012, Alexander, 2013). Highlighting the direct relationship between social and ecological resilience, Adger (2000) describes social resilience as the ability of communities to withstand environmental, social, economic or political shocks (p.361). Consistent with the view that disasters produce change, Manyena et al (2011) introduce the idea of 'bouncing forward', defining disaster resilience as the capacity of the disaster-prone to adapt 'disaster resilience could be viewed as the intrinsic capacity of a

system, community or society predisposed to a shock or stress to bounce forward and adapt... by changing its non-essential attributes and rebuilding itself' (p. 419).

Recognition that disasters are a consequence of vulnerability shapes approaches to resilience and leads to a focus on community agency and capacity building. Resilience is regarded as one property that influences adaptive capacity- a term proposed as an umbrella concept that includes 'the ability to prepare and plan for hazards as well as to implement technical measures before, during and after a hazard event' (Klein, Nicholls & Thomalla, 2003, p. 43). Gaillard (2010) argues that disaster preparedness will not be effective without the engagement of communities, and urges DRR practitioners and academics to learn from community development approaches 'enhancing capacities, reducing vulnerability and building resilience requires increasing participation of local communities, as has long been encouraged in development research, policy and practice' (p.224). The prime component to pave the way for a self-reliant community is to facilitate local-level involvement in mitigation and preparedness, supported by community participation in operational planning, education and training. Acknowledging the relationship between resilience, vulnerability and community agency, Twigg (2007), emphasises the importance of community capacity building 'putting greater emphasis on what communities can do for themselves and how to strengthen their capacities' (2007, p.6). Whilst Twigg presents a comprehensive list of resilience characteristics in his 'tables of a resilient community', it is a complex model that would be difficult for a community to implement in its entirety. The Community and Regional Resilience Institute documents the most widely recognised definitions of community resilience, advising that 'the definition one chooses should reflect the way in which it will be used' (CARRI, 2013, p.14.). As our study examines public engagement initiatives used in the context of pre-disaster planning, the definition of community resilience accepted is 'the capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure' (UNISDR, 2005 in CARRI, 2013, p. 8). Building community resilience to disasters is premised on the existence of effective leadership; however in most definitions the role of leadership is taken as a self-evident category, suggesting assumptions of a shared understanding of what leadership signifies.

Community resilience and leadership

Analysis of Amadora municipality's approach to building community resilience necessitates some understanding of leadership styles and forms. Leadership research from political science, anthropology and public administration sectors indicates that notions of good leadership have varied over time and across cultures, highlighting the complexities and differing contexts of how leadership is understood and performed (Hofstede, 1993; Nye, 2008; t Hart and Uhr, 2008). Wide-ranging systemic breakdowns, interdependencies and the uneven effects of catastrophes indicate current practices of crisis leadership are insufficient to the challenges of 'hyper-complex' events (Lagadec, 2007, 2009; Nye, 2008). A shift in leadership approaches with a necessary adjustment of traditional command-control approaches and a diffusion of power through inter-agency collaboration is required (Lagadec, 2008; Nye, 2008). The role of leadership is to integrate vertical structures of an individual agency's control-command system into a horizontal system for cross-agency collaboration, a 'network system for command...control that connects, collaborates and coordinates an

adaptive response' (Pfeifer, 2012, p. 21.). Transformative leadership that encourages a sense of empowerment, ownership and engagement within the community is required, incorporating a relational approach that constitutes a nexus between leader and follower, with both sides exercising agency (Lopes & Theisohn, 2003; t'Hart and Uhr 2008).

Lunenberg (2011) distinguishes between leadership and management in terms of their distinct yet complementary functions, a distinction that has implications for the case analysed in this paper. Leadership is concerned with change, new approaches, and assembling a vision that provides meaning in order to motivate and mobilise staff. In contrast, managers provide stability and undertake planning, budgeting and problem solving to implement the vision. Therefore good management entails the successful implementation of the leader's vision (Lunenberg, 2011, p. 3.). The theme to emerge from our review of leadership literature is that specialist skills and support systems, to assemble information for the purpose of DRR preparedness, are factors required to enable community resilience building.

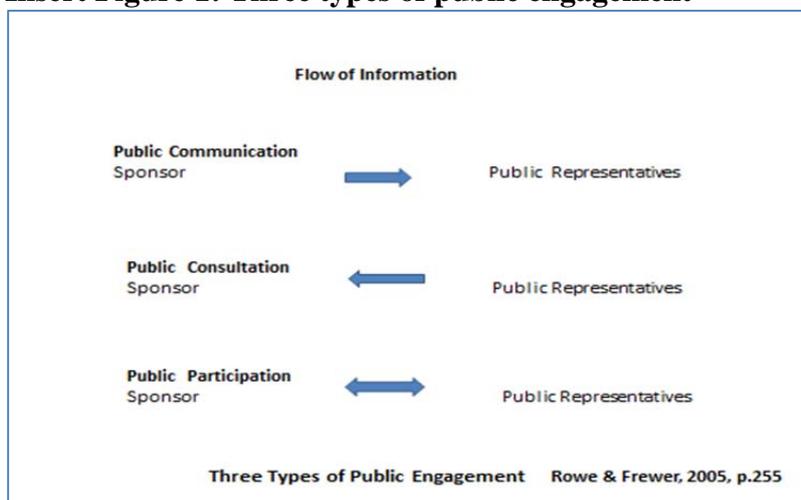
Public participation and engagement

Lack of communication and coordination between different administrative levels—regional, national, provincial and/or village—in risk and capacity assessments presents a significant limitation for disaster risk reduction (Becker, 2012). Consistent with research undertaken by Lunenberg (2011), and Pfeiffer (2012), Becker recommends a more holistic approach, including multiple administrative levels to gather information for capacity assessments (2012, p. 232). Highlighting the role of local government initiatives in disaster risk reduction, Becker recommends leaders at the micro-level encourage public participation and proactive planning, ensuring allocation of adequate local level resources and the participation of various stakeholders. Public participation and community initiatives are emphasised in a recent UN report advising that local-level leadership and competence can reduce threats from natural hazards and raise awareness, identify and reduce risks (UNISDR, 2012). Ineffective leadership, political pressures, lack of communication and coordination between administrative departments, emergency management organisations and other stakeholders at village or municipality level can be major obstacles to public participation resulting in an incomplete view of current capacities and preventing a holistic, systematic approach to DRR (Becker, 2012; Kusumasari et al, 2010). Accepting public participation as a factor that enables community resilience building leads our review of literature to engagement terminology.

Social science, communication and political science literature reveals a multiplicity of terms used to describe engagement between decisionmakers and publics—community engagement, stakeholder engagement and public participation—to name a few. Public participation is a term often used to describe the overall practice of involving publics in policy-setting decisions of organisations or institutions; however when used in this context, the term fails to acknowledge the range of communication practiced between organisations and publics during engagement events, and the many different ways or levels that publics may be involved. American scholar Shelley Arnstein (1969) lists eight levels of public engagement according to the degree to which the publics are empowered—from nonparticipation (manipulation by powerful decisionmakers), to levels demonstrating citizen empowerment—partnership, delegated power and citizen control (1969, p. 217). Arnstein's seminal work is regularly cited

by scholars and practitioners, however critics reject the article’s central premise that participation is hierarchical and that citizen control is the ultimate goal of participation ‘an assumption that does not always align with participants’ own reasons for engaging in decisionmaking processes’ (Collins & Ison, 2006, p. 4). Placing communication at the centre of public participation analysis rather than Arnstein’s focus on power, Rowe and Frewer (2005) describe communication variables that differentiate three types of public engagement- *public communication*, *public consultation* and *public participation*. *Public communication* and *public consultation* are described as one-way flows of communication, the first involving communication conveyed from the decision-maker to the public and providing no mechanisms for public feedback; in the second the flow of information is from public to decision-makers. During *public participation* dialogue between decisionmakers and publics is encouraged ‘the act of dialogue and negotiation serves to transform opinions in the members of both parties’ (Rowe & Frewer, 2005, p. 256). The three types of public engagement described provide a framework to analyse communication practices used during Amadora’s DRR engagement initiatives (Figure 1.).

Insert Figure 1: Three types of public engagement



Synthesising salient points from Arnstein’s ladder of participation and Rowe and Frewer’s table of communication flows, Collins and Ison (2006) describe the ‘process’ of interactions occurring between actors during engagement events as a form of social learning through collective engagement with others. The authors contend that collaborative social learning enables changes in knowledge and understanding that are reflected in modified policies and practice by decisionmakers and publics (p.4). Also concerned with social learning, scholars from the community development sector argue that effective two-way participation necessitates methods to engage in dialogue, listening to explore shared interests, joint problem-solving and relationship-building (Gao & Zhang, 2001; Servaes & Malikhao, 2005). Endeavouring to answer the question, ‘how can organisations differentiate public engagement events that are participatory from those that are not?’ Jacobson (2007) developed a participatory communication model derived from Habermas’s (1984) theory of communicative action. Despite the reality of political and socio-economic contradictions and power inequalities, much research demonstrates that Habermasian theory may guide

organisations in their practice of public engagement (Deetz 1992, 2001; Fishkin 2009; Garnham 2007; Jacobson 2007; Meisenbach & Feldner 2009). Jacobson's participatory communication model uses Habermas's concepts of validity claims and ideal speech conditions to examine whether public engagement events include methods to engage in dialogue, listening to explore shared interests, joint problem-solving and relationship-building. Recent studies have adapted Jacobson's participatory communication model as a framework to examine the quality of public engagement by French and Italian rail companies during planning for new high-speed rail lines (Burnside-Lawry et al, 2013; Burnside-Lawry & Ariemma, in press; Rui 2004).

Building on previous studies, Jacobson's (2007) participatory communication model is adapted to examine public engagement initiatives between Amadora's campaign team and publics during DRR planning (Appendix A). During data analysis, the campaign's public engagement activities are examined using Rowe and Frewer's (2005) types of public engagement (Figure 1). From concepts described in the literature review, the following research questions were developed:

- How do participants (decisionmakers and publics), perceive public engagement initiatives used in Amadora's disaster risk reduction campaign?
- What conditions enable local level engagement to build community resilience?

A description of Portugal and Amadora precedes a discussion of the study's findings.

Portugal's political situation

Portugal is a republic with a president and prime-minister elected every four years. There are two levels of government, national and municipalities (303 municipalities). As with Italy and France, Portugal's political system is highly centralised with almost all decisions and guidelines concentrated in ministries (national level). However, in recent years the government has decentralized school management, tax administration services and urban planning powers to the municipalities. At the time of this study, Portugal's national government is a combination of Democrats and Christian Democrats. At the municipality level the Socialist party have 149 municipalities, the Communist Party 34 municipalities, Democrat Party 102 municipalities, Christians Democrats 5 municipalities and Citizens Party 13 municipalities. Amadora is one of Portugal's municipalities and a satellite city of Lisbon located in the northwest of the Lisbon metropolitan area. Composing an area of only 23.77 square km, it is one of Portugal's smallest municipalities; however, with 7,343 inhabitants per km, Amadora has the highest population density of any municipality in Portugal. The population is characterised by an increasing proportion of elderly people. Younger people often leave Amadora to look for work in other Portugese cities such as Lisbon, Sintra or Montijo, whilst the elderly people remain. The city also has a growing immigrant population, mainly from the former Portugese colonies in Africa-Cape Verdian, Angola and São Tomé. Amadora also has a large community of Roma gypsies who have given up their nomadic lifestyle to settle in Cova da Moura in Junta de Freguesia da Damaia, a neighbourhood with no real urban structure or planning in the streets and houses. One of the challenges facing Amadora's emergency services is the lack of access and difficulties in evacuating this neighbourhood during fires or floods.

Citizen engagement in Europe was enshrined in the Aarhus Convention, adopted by the U N Economic Commission for Europe in 1998. Described as a pillar of democratic participation, the Aarhus Convention promotes the governance of environment ‘by all and for all’, declaring that all people should have the right to be kept informed of all environmental issues, be given the opportunity to participate in environmental decision-making and have access to judicial proceedings. While not law, the Aarhus Convention has been ratified by over 40 countries, including Portugal in 2003.

Figure 2. Map of Portugal



Over the last 20 years Amadora’s major disaster risks have been flash floods (urban area), urban fires, industrial fires, landslides, storms (fallen trees, damaged buildings, infrastructure, etc.) and road accidents. As a highly urbanised territory, Amadora faces a number of challenges including a growing urban population and increased density, the decline of ecosystems due to human activities, and the adverse effects of climate change. In August 2010, Amadora joined the UNISDR *Making Cities Resilient-My City is Getting Ready!* campaign, developed to support local-level leadership address the challenges of rapid global urbanisation. A description of the study’s methodology follows.

Method

The research methodology draws upon literature from a range of disciplines to reconceptualise approaches to disaster management, in particular during the preparedness stage. A qualitative case study approach with multiple data sources was selected to examine public engagement initiatives between Amadora’s campaign team and publics, with a focus on communicative action as a necessary ingredient for enhancing local level engagement and building community resilience. As the research was conducted in collaboration with the UN

Office for Disaster Risk Reduction (UNISDR), a list of possible cases, based on criteria provided by the researcher, were identified by UNISDR; from this list, Amadora, was selected. UNISDR approached Amadora's campaign leader, describing the study's purpose, and asking the campaign team if they would participate. Communication between the researcher and the campaign leader commenced once UNISDR received Amadora's consent. A suitable time for data collection, corresponding with a variety of DRR public engagement events scheduled in Amadora, was agreed upon. A letter authorised by RMIT University's Ethics Committee was sent by the campaign leader to respective publics, requesting permission for the researcher to attend scheduled events. DRR events and interviewees were selected from a list of participating organisations provided by the campaign leader. To maximise descriptive validity, selected interviewees included members of Amadora's disaster risk reduction decision makers (campaign team members and their manager, a local politician-Councillor), and representatives from various publics who participate in Amadora's DRR engagement events (Table 1).

Insert Table 1: Participants

Table 1: Participants

Decisionmakers		Publics	
Represent	Code	Represent	Code
Municipality of Amadora Councillor	C1	Secondary school teachers (2)	P1
Campaign team leader	C2	Social Co-ordinator Amadora	P2
team-Civil Protection Service	C3	Coordinator Elderly Citizens Centre	P3
team- Health and Safety at Work	C4	President of Junta de Freguesia of Venteira*.	P4
team- Health and Safety at Work	C5	Director of Centro Social Paroquial **	P5
team –Urban Planning	C6	Professor of Geography, Lusófona University	P6
team – Social and Cultural Services	C7	Chief of Fire Authority Amadora	P7
		Chief of Police Amadora	P8

*Junta de Freguesia of Venteira–liaison organisation between the population and the Câmara (Municipal of Amadora). Provides social services to the Junta by the Câmara-providing green spaces, public cleaning, activities for the elderly, transport for citizens to hospitals and allied health services, ateliers where people can pass their time.

** Centro Social Paroquial – private social charity within the catholic parish, providing child care, elderly citizens care, food, clothing and shelter.

The primary data source was semi-structured one-on-one interviews, supplemented with observation and document analysis. The majority of interviews were held at conclusion of respective DRR engagement events including meetings, workshops, community and school-based activities. When answering the questions, participants were asked to reflect upon their experience during the recent DRR event led by the campaign team (Appendix A). All interviews were conducted at the interviewee's place of employment, at the event, or a place nominated by them, and lasted approximately one hour. Standard university ethics process was followed with appropriate translations into Portuguese. At each interview, a bi-lingual (English-Portuguese) translator was in attendance. Interviews were audio-recorded, transcribed in Portuguese then translated to English by a professional transcriber.

Theoretical orientations guided development of an *a priori* coding scheme based on Jacobson's (2007) model of participatory communication, to explore participant perceptions during DRR initiatives. Miles and Huberman (1994) describe this process as developing a set of provisional codes based on the conceptual framework. The analytical focus was on recurrent themes and statements based on the researcher's interpretation of salience to the Habermasian framework and how these revealed processes and norms of the actors concerned (Appendix A). Interview transcripts were read line by line and sections of the document, or individual words highlighted and coded. It was anticipated the coding structure would be refined as data was interpreted, allowing categories to emerge as key themes were identified based on their 'recurrence, repetition and forcefulness' (Dempsey 2010, p. 369).

Findings

To answer the first research question '*how do participants perceive public engagement initiatives used in Amadora's disaster risk reduction campaign*', findings are presented under five headings derived from Jacobson's (2007) participatory communication model (Appendix A). Headings are not mutually exclusive, the team's efforts to build relationships with community organisations is perceived as *appropriate* behaviour, and also an indication of the team's *sincerity* in attempts to address community concerns regarding DRR. Quotes that reflect recurrent themes, processes or norms of the actors concerned are included in table format, providing participant 'voices' associated with each heading. In line with participants' use, 'publics' and 'partners' are used to describe individuals, community, civil society and institutions affected by the threat of disasters in Amadora. 'The campaign team' and 'the team' refer to decisionmakers responsible for Amadora's disaster management and members of the municipality's *Making Cities Resilient-My City is Getting Ready!* team.

Does the campaign team behave appropriately during DRR planning?

Campaign team members cite Amadora's *Presidente da Câmara* (mayor)'s vision 'to make Amadora a safer city', as an appropriate guiding strategy for the campaign. The team is comprised of personnel from six municipal departments: Civil Protection Service (2), Health and Safety at Work Service (3), and Urban Planning (1), reporting to Amadora's *Vereador* (Councillor) for Civil Protection Services and the Environment. The mayor advised the team to involve as many people and institutions as possible to create an attitude of safety. The team's mission-to increase engagement and information sharing among different publics in disaster risk reduction issues-is expressed in campaign documents as the following objectives:

- to ensure local authorities and the population understand the risks facing Amadora;
- to facilitate developing and sharing local information on disaster losses, hazards and risks-including who is exposed and who is vulnerable.

Guided by the mayor's 'safety' vision, the team turned to Portugal's legal framework to achieve their objectives, noting new national regulations for Safety against Fires, launched in 2009. The team developed a check-list to assist organisations comply with Portugal's Legal Regulations for Safety against Fires (Law 220/208, 12/11, 2009). This approach is consistent with UNISDR's report advocating the use of community-led efforts to instill a culture of safety (UNISDR, 2014, p. 8). Publics perceived the team's use of health and safety regulations as an appropriate means of encouraging local-level engagement in DRR,

describing the expertise provided by the team to improve safety in buildings, and to deliver training in emergency response, as examples of appropriate behavior by the team (Table 2).

Participatory approaches to risk reduction bring with them issues of power dynamics, inclusion and exclusion that must be addressed if participation is to actively engage people, encouraging voice but also encouraging listening. During interviews and other data collection activities there was no evidence to suggest that community members perceived a power-imbalance between the campaign team and local residents. Participants described the campaign team’s efforts to include vulnerable groups in DRR planning; examples were given of appropriate activities undertaken by the team in Moinho da Juventude, a neighbourhood considered vulnerable to urban fires and floods due to lack of roads, drainage and urban infrastructure. A second example given was the team’s activities in Cova da Moura. Essentially occupied by African immigrants, the rundown area Cova da Moura has three social centres: a kindergarten, an after-school care centre and a youth centre. On most days, there are between 50 to 60 children within the premises. Publics and team members described the team’s approach to engaging the Cova da Moura community in risk reduction activities. Using the need to comply with safety laws as an entry point, the team made improvements to the institutions by providing advice on correct emergency signage, re-configuration of service areas to improve safety, and training for staff and children in emergency response. The team describe the community as a web of families who communicate with the wider neighbourhood via word of mouth *“all the ideas that we pass on to the children will be passing on to the rest of the neighbourhood”* (C2) (Table 2).

At the time of this study, the Amadora campaign had more than thirty partners including municipal services, public-private organisations, emergency services, NGO’s, schools and academic-scientific entities. The team identified key publics and institutions to engage as partners in order to achieve campaign objectives. Their strategy was to work with service providers, educational authorities, professors and students to include disaster risk reduction at all levels of the school curriculum and in all public and private institutions. Commencing with the school community, initiatives were designed to increase teachers’ awareness of risks faced by Amadora and to provide information for students *“the students, the children will also speak to their parents and grandparents”* (C2). Document analysis reveals more than 100 school sessions and approximately 20 sessions for the elderly population presented by the team per year. Individual team members used their knowledge of local associations and organisations to maintain 2-3 contact points in each *Freguesia* (neighborhood), to disseminate DRR information (Table 2).

Table 2. Appropriateness

Examples of respondents’ comments – Appropriate behaviours	
Campaign team	Publics
‘ It’s as if we were working in a network or web, the Mayor is at the centre of the web....each of us.... reach our partners through the Juntas de Freguesia, who are able to bring in more partners’	‘it allowed us to organise and create our Emergency Plan which did not exist before’...It’s good for us, staff because we learn how to do things ourselves without having to wait for an

C3	outside company to come in and do the work for us... Everyone's involved...we won't forget things'P5
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When analysed using Habermas's description of appropriateness 'members of a social group are mutually *entitled* to expect certain types of behaviour from one another' (2001, p. 124), it is evident that emergency services personnel in Amadora consider some sections of Amadora's community to exhibit inappropriate risk reduction behaviour. The two emergency services campaign partners provide examples, contending that the older population have inappropriate expectations of Amadora's emergency services, and that there was no community representation on the city's Emergency Plan Committee because of lack of community interest in DRR. A third example of inappropriate behaviour was perception of inappropriate coordination between emergency services (operations), and other disaster management agencies during previous emergencies.

2. Is the campaign team sincere in addressing stakeholder concerns?

Team efforts to build relationships within the community are cited as indicators of 'sincerity', (Appendix A). Collaboration, partnerships and relationships are recurrent terms used by respondents. Partners describe lending their facilities and providing educational resources for campaign events and receiving practical outcomes such as publications and flyers on self-protection measures and risk information in return. Consistent with partner comments, team members refer to synergies created to maximise resources and to disseminate DRR activities widely within the community. The Councillor speaks of the need to encourage a sense of community empowerment, ownership and engagement "*because when a high magnitude earthquake hits, the first to arrive will not be the Civil Protection officers: it will be your next-door neighbour, your friend, whoever is in the house*" (C1).

Insert Table 4. Sincerity

Examples of respondents' comments–sincerity	
Campaign Team	Publics
'When we first all sat down together we were thinking how to bring the Campaign to people, what are our future partner's realities and needs?' C2.	'the people are what makes the difference...the people [the team] are quite sensitive and ...motivated to deal with this specific field of work... at least that is what comes across to us... it has been a great help for the institution' P5

Lack of financial resources or a national DRR policy, are examples provided to indicate a lack of sincerity for DRR in Portugal. Every initiative undertaken by the Amadora municipality has been their own responsibility. The Councillor states that in principle, financial support for disaster risk reduction is the responsibility of the Ministry for Internal Administration; however at the time of this study, Amadora had received no national financial support. Community participants and practitioners referred to Portugal's lack of a national regulatory framework as a reason for lack of national funding, and subsequently poor resourcing for local level DRR planning.

3. Is the campaign team knowledgeable about local conditions in Amadora?

When formed in 2010, the team commenced with an assessment of risks facing Amadora. Team members explain the importance of sourcing, collating and analysing information on hazards and population vulnerability to make decisions regarding timely interventions before, during and after a disaster. The team’s initial focus was to create awareness of risks facing the Amadora community, believing that the community must know about their exposure to hazards and risks before they will adopt DRR measures. Partner statements confer, describing the team as knowledgeable of, and interested in, learning about community-level issues. Examples include perceptions that the team make an effort to find out what concerns people, and to answer their questions to the best of their ability during DRR events. Respondents refer to their own, and their clients, increased risk awareness since joining the campaign (Table 5).

As a member of UNISDR’s campaign, Amadora is gaining a reputation as a leader in intra-national and international city-to-city learning. The team consider these initiatives important opportunities to share their experience with other cities. At the time of this study, Amadora team members had participated in the following UNISDR conferences:

- Lebanon, Beirut–Training on the role of local governments in making cities more resilient to disasters;
- Croatia, Dubrovnik–3rd European meeting for disaster risk reduction;
- Egypt, Cairo–Urban Risk Management;
- Switzerland, Genève–Global Platform for Disaster Risk Reduction.

Insert Table 5. Knowledge

Table 4: Knowledge

Examples of respondents’ comments–knowledgeable	
Campaign Team	Partners
‘to ensure community resilience, it is not enough to just consider the risk in different stages... we needed to develop an approach to involve, connect, share information and implement different levels of knowledge’ C2.	They[the team] are concerned with getting to know our reality... which then leads them to present solutions that are appropriate to our reality’ P5.

Emergency services personnel highlight the difficulty of raising DRR awareness in the community. Two partners refer to a lack of knowledge regarding the role of Civil Protection Services, suggesting more work is needed to increase the older population’s self-reliance during minor emergencies.

4. Is there mutual understanding between all stakeholders involved in DRR?

Many statements indicate respondents understood the other parties’ positions and that DRR information was intelligible (Table 6). The team embraced social media to engage in constructive collective action and participatory communication with publics. According to the team, the purpose is to create interaction and to gain an understanding of community risk perceptions. All outputs are disseminated in social networks (Facebook and YouTube). Evidence suggests that, of all the social and digital tools used to encourage participatory

communication, Facebook is the most effective, with over 26,000 visits and more than 1,800 people sharing content since November 2012.

A multidisciplinary strategy for DRR data collection and analysis is evident. Within council, the Geographic Information Division provides information to assess risks, the Education and Social Departments provide demographic statistics and the Environmental Department provides climate change information. External data inputs include the Municipal Fire Authority-statistics of accidents and regional fires; and the National Civil Protection Authority-floods, landslides and earthquake activity. All data is converted to community outputs by a partnership established with Universidade Lusófona. In addition, an internship program has been established with 2-3 students working in the campaign office each year. At the time of this study there was one student and a lecturer from the University working with the team to collate historical data regarding landslides. Participants cite evacuation-drills as examples of the team’s ability to present complex information in a simple manner, using question-answer sessions to ensure participants understand. The campaign’s public events have increased community understanding of the need for disaster risk reduction (Table 6).

Insert Table 6: Comprehension

Examples of respondents’ comments–comprehension	
Campaign Team	Partners
“most important is to have a clear idea–to understand...that is the reason for the research done by the universities, every study is important”C2	“the campaign helps us a lot with information, participation from other institutions, dissemination of others’ experiences... people have started to understand” P3

5. Is dialogue encouraged during Amadora’s DRR engagement events?

Rowe and Frewer’s (2005) table of public engagement types are used to examine whether opportunities for dialogue were evident during DRR initiatives. Events are coded based on the flow of information evident between the team and publics (Table 7). Types are not mutually exclusive–during one event there may be opportunities for one-way information delivery from the team to publics, instances where information is sought from publics by team members, and/or there may be evidence of dialogue between parties.

Results indicate the majority of DRR events involve *public communication*, described as information conveyed from the team to publics, followed by a high number of *public consultation* events, where information is conveyed from publics to the team (Table 7). Social media initiatives and university initiatives are consistent with *public participation* as there is evidence that information is exchanged between publics and the team, and that dialogue takes place. Further examples of *public participation* initiatives are provided by one NGO representative (Table 7).

Table 7. Amadora’s public engagement events based on information flow

Publics	Activity	Public communication	Public consultation	Public participation
TOTAL	32	32	23	6
Community				
Children:	School lessons	x	x	

school & pre-school age	School evacuation drills	x	x	
	DRR International Day Conference	x	x	
	Child care	x	x	
Disabled	International DRR Day	x	x	
	Information sessions	x		
Elderly	workshops	x	x	
	Information sessions	x		
	Evacuation drills	x		
	DRR International Day Conference	x	x	
Community	Community Fair	x	x	
	Information sessions	x		
	Emergency simulations	x		
	DRR International Day Conference	x		
	Social media	x	x	x
Institution & (staff training)				
NGO's	Emergency plan	x	x	X P5
	Risk assessment	x	x	
	Evacuation drills	x	x	X P5
	DRR International Day Conference	x		
Schools	Emergency plan	x	x	
	Risk assessment	x	x	
	Evacuation drills	x		
	Staff training	x	x	
Pre-schools	Emergency plan	x	x	
	Risk assessment	x	x	
	Evacuation drills	x	x	
	Staff training	x	x	
Local government	Combined Juntas staff training	x	x	
	Municipal Commission for Emergencies Plan	x		
Science & Technology Institutions	Data analysis by university-climatology, urban planning, traffic accidents,	x	x	x
	Student fieldwork & reports	x	x	x
	Student placement in Campaign office	x	x	x

Discussion

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Consistent with previous studies, questions adapted from Jacobson's (2007) participatory communication model reveal more than participant perceptions of communication during DRR engagement events; when prompted to give reasons for their answers to each question, participants draw upon their knowledge of policies, processes and norms associated with DRR planning in Amadora. Synthesis of all data collected in the study provides an answer to the second research question '*what conditions enable local level engagement to build community resilience?*' Based on responses to interviews, observation and document analysis 1) leadership, 2) a strategic approach to engaging partners, and 3) a wide spectrum of public engagement events, are identified as key factors that enable local level engagement in building Amadora's community resilience. Conversely, lack of a national DRR policy is identified as detracting from Amadora's efforts to build community resilience. Conditions associated with each factor are described.

1. Leadership

The Amadora case study is an example of one dedicated team, supported by strong local-level political leadership that has made significant advances in motivating and encouraging adaptation and change to reduce the community's exposure to hazards. Amadora's mayor provides an example of transformative *leadership* that encourages a sense of empowerment, engagement and a relational approach to building community resilience (t'Hart and Uhr 2008, p. 11). In Amadora, a multidisciplinary team was established, reporting to Amadora's Councillor for Civil Protection Services and the Environment. This organisational structure is indicative of new approaches to crisis leadership, involving a separation of strategic and operational roles, and alignment of individual agencies into a single mission-an approach consistent with the view that a leader's role is to integrate vertical structures of control-command into horizontal systems for cross-agency collaboration (Pfeiffer, 2012; Lunenberg, 2011). Our study has confirmed observations made in a comparative study undertaken in Norway, Sweden and the Netherlands that changes in governance processes are necessary to enhance the integration of adaptation into the civil protection sector (Groven, Aall, van den Berg, Carlsson-Kanyama & Coenen, 2012). The organisational structure of Amadora municipality's campaign team demonstrates a flatter decision-making process by the alignment of individual agencies into a single mission and the empowerment of on-the-ground (ad-hoc, distributed) leadership. A recommendation from our findings is for national policy makers to acknowledge the important role of local authorities in disaster management and climate change policies, and to provide resources that enhance the ability of local municipalities to flatten decision making processes and harness community input for city-level planning. Tensions are evident between some agencies and the community, as emergency services personnel are introduced to this new, collaborative approach to emergency planning. These tensions are not unusual, considering that Amadora's DRR campaign was less than 3 years old at the time of this study.

2. A strategic approach to partnerships

Creating a multidisciplinary team from municipal departments contributed to the campaign team's strategic approach to partnerships, and to combine health, safety and climate change adaptation with disaster risk reduction policy. Our findings are consistent with the case study of Bergen, Norway, in demonstrating the transformative potential of environmental policy-making by the integration of policies to address climate change adaptation (Groven et al,

2012). This approach has synergies with Becker's (2012) recommendation for a more holistic approach, enabling a culture of inclusiveness and proactive planning, ensuring allocation of adequate local resources and support from various departments and stakeholders (Becker, 2012; Lunenberg, 2011). Addressing every day disasters (car accidents, safety in the home), during public engagement initiatives provides a greater impetus for DRR at the local level, with more complex information gradually added to raise community awareness of Amadora's risks. Consistent with Reed's (2008), contention that a fundamental task in organisation-stakeholder engagement is to ensure all key parties are included, data suggests the team have taken appropriate measures to ensure no individual or group is excluded from the campaign. Reviewing the team's list of partners, it is evident that, although unlikely to have ever read Freeman's (1984) seminal work on stakeholder approaches, their partner-engagement process is based on criteria remarkably similar to Freeman's description of stakeholders as those who can affect, or are affected by the organisation's objectives.

3. A wide spectrum of public engagement initiatives

Findings indicate that the campaign team implemented a wide spectrum of public engagement initiatives; however the majority of DRR public engagement initiatives involve one-way communication flows associated with *public communication* and *public consultation* (Table 7). During interviews, participants referred to the need to raise community awareness of Amadora's risks, suggesting that the team's current focus on engagement events with one-way information flows is part of an awareness-raising strategy. Opportunity for community voices to be heard is evident in the Amadora team's use of social media to engage in participatory communication with their stakeholders, and their data collection and analysis in partnership with universities and council departments. A theme to emerge from our literature review of leadership was that crisis leadership requires specialist skills and support systems that assemble information for the purpose of preparedness. Data collection activities undertaken by Amadora's team demonstrate efforts to implement new types of information infrastructures and new ways of analyzing and understanding social complexity for the purpose of disaster preparedness. Social learning and peer-to-peer learning are highlighted as valuable tools for improved local level community and government capacity (UNISDR, 2014). The team's involvement in UN conferences and inter-city exchanges provides valuable city-to-city learning. At a local level, inter-Junta activities provide opportunities for social learning and adaptation, and enable a holistic, 'whole of city' approach to DRR-examples consistent with literature describing resilience as a process of continual learning to enable publics to take responsibility for decisions and to improve their capacity (Manyena,2006).

4. Need for national policy

Our study has confirmed findings from previous studies in Norway and Canada that the absence of national policies is a major barrier to mainstreaming disaster risk reduction planning. In our study of Amadora, as in the Canadian study undertaken by Wilson (2006, cited in van den Berg & Coenen, 2012), participants perceive the lack of any national government pressures as a factor that detracts from mainstreaming DRR into other policies and activities, and is a hindrance for local authorities to prioritise DRR and climate change adaptation. These observations are consistent with results from a case study reported by Aall

(2011), highlighting an urgent need for national policy to improve local level engagement in climate change adaptation.

Conclusion

This paper contributes to knowledge about participatory approaches to risk reduction. A unique analytical framework is used to differentiate events using one-way information from those offering opportunities for dialogue and participation. Drawing upon literature from a range of disciplines, a research methodology is proposed that focuses on communicative action as a necessary ingredient for enhancing local level engagement and building community resilience to disasters. This study identifies factors that enable and conversely, detract from, local level engagement to build community resilience. Findings provide researchers with a basis for further investigation, to analyse local level engagement in disaster risk reduction, and to contribute to the global dialogue on disaster risk reduction. As national and international development planners recognise the need to merge climate change adaptation and risk reduction into the development programming repertoire, the research method outlined in this paper will strengthen participatory methods that are already a part of development practice. A recommendation for DRR practitioners is to adapt these models as a method to plan and evaluate local-level engagement events to meet the communication needs of particular situations.

Context		
<p>What do you consider are the major disaster threats facing Amadora? How long have you/your group been involved in Amadora's Campaign to reduce disaster risk? How did you/your group become involved? How would you describe your role within: a) Your group? b) Amadora's Campaign?</p> <p>Participants are prompted to recall their most recent participation in a DRR engagement event</p>		
Validity Claim	Knowledge/truth	<p>During your organisation's involvement with the campaign, do you consider that: <i>[The Campaign Team] [Your team]</i> was knowledgeable about the opportunities or threats to the Amadora community and/or local conditions? <i>[The Campaign Team] [Your team]</i> presented facts regarding the situation truthfully?</p>
Validity Claim	Appropriateness	<p>Do you consider that: <i>[The Campaign Team] [Your team]</i> behaves in a manner that is appropriate given its legal mandate and responsibilities? Give reasons for your answer</p>
Validity Claim	Sincerity	<p>Did you consider that: <i>[The Campaign Team] [Your team]</i> is sincere in attempts to address community, business and local government concerns regarding disaster risk in Amadora? Give reasons for your answer</p>
Validity Claim	Comprehension	<p>Do you consider that: members of the community and local businesses in Amadora understood the Municipality of Amadora's position on reducing risk from disasters and the issues involved? Give reasons for your answer</p> <p>The Municipality of Amadora understood community and local business positions' and the issues involved? Give reasons for your answer</p>
Speech conditions	<p>1.Symmetrical opportunities 2. Free to raise any proposition 3. Equal treatment of Propositions</p>	<p>Do you consider that: 1. Community and local businesses were given equal opportunities to challenge decisions made regarding disaster risk reduction policies? 2. Community and local businesses were free to raise any proposal or idea they wished for discussion? 3. The Campaign Team treated community and local business positions' and viewpoints fully and to their satisfaction? Give reasons for your answer</p>

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