



*Master Thesis* (30 ECTS)  
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## **Civic Participation in Flood Risk Governance: Lessons from New Orleans, Louisiana**

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## **ABBREVIATIONS**

DPW - Department of Public Works

FRM - Flood Risk Management

LA SAFE - Louisiana's Strategic Adaptations for Future Environments

NOLA - New Orleans Louisiana

OECD - Organisation for Economic Co-operation and Development

STAR-FLOOD - Strengthening and Redesigning European FLOOD risk practices

SWBNO - Sewerage & Water Board of New Orleans

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## Summary

Climate change and rising sea levels are an increasing risk for the livelihoods of coastal communities worldwide. Creative and strategic planning measures are being taken to protect residents of these regions by local or national governments, businesses, and non-profit organisations alike. However they risk failure if input from citizens are not integrated into the decision making and implementation processes, especially for communities most vulnerable to flood risk because of physical, social, cultural or economic factors.

To gain further insight into how vulnerable communities can be included in the processes of flood risk governance, this thesis examined the current academic discussions about the role of civic participation in flood risk governance. It focuses on New Orleans, an extreme example of the negative effects of insecure flood risk governance.

This research identified through a literature review modes that are currently and historically used to involve citizens in city planning and public service provision, with specific focus on flood risk management (FRM) strategies. These include: primary formal education, city wide public awareness campaigns and local neighborhood meetings. The research then identifies those factors which facilitates and hinders the involvement of individuals and communities in flood risk governance. The modes and influential factors identified and the findings of this study can be applicable more widely allowing future research to complement and build on this thesis.

The research then examined New Orleans as a case study, a city that in recent history experienced devastating effects from both the physical and environmental effects of flooding and the social, cultural and economic effects. A combination of expert interviews, a review of case specific publications and observations were used to examine the current state of civic participation in flood risk governance and to identify the dominant perceptions about modes and influential factors among key governance actors involved in developing FRM strategies.

The study found that civic participation in flood risk governance in New Orleans is low, in general and in particular among more vulnerable communities. Whilst there is some experimentation with less traditional modes of civic participation, there is an over reliance on traditional methods that have continuously proved ineffective to meaningfully engage citizens. Stakeholders have prioritised certain factors, including

citizen competence in respect to flood risk governance and civic participation, trust between citizens and institutions, investment from all governance actors, self efficacy of citizens, citizen's sense of responsibility and collaboration among entities and with citizens. Engagement with vulnerable communities requires awareness of competing priorities and factors limiting participation, experimenting with multiple approaches while being mindful of over consultation, meeting citizens where they are and evaluation.

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# 1. Introduction

## 1.1. Research Aim and Objectives

Flooding is an ever-present environmental risk that highlights vulnerabilities within certain geographical locations and certain communities. Given this risk, citizens of these communities have an interest in engaging with flood risk governance for their individual and community well-being. The overall aim of this research is to examine the role of civic participation as a tool for building societal resilience and reducing vulnerabilities to flooding in marginalised and disadvantaged communities. In order to do this, I first contextualise my research, specifically the gravity of the issue of flooding and the gaps in literature and research that my thesis attempts to fill. As will be explained in more detail through my research framework, this thesis is then divided into two parts. In the first part, I provide an overview of the key research that has influenced the current academic perspective on flooding, resilience, vulnerability, and the role of civic participation. The subject is approached primarily from a social science and governance perspective, considering concepts and theories related to flood risk governance, civic participation, disaster risk reduction, resilience in vulnerable communities, and guidelines for developing and implementing flood risk management (FRM) strategies. By examining flooding in this way and from this perspective I aim to provide recommendations, for policymakers and other relevant stakeholders, on how to enhance the role of vulnerable communities in flood risk governance.

In the second part of this thesis, I provide a case study of civic participation in action in New Orleans, Louisiana, United States of America. This case study provides valuable and transferable lessons derived by consulting with relevant stakeholders and observing modes of civic participation in action. The methodology, relevance and findings of this case study will be discussed in more detail in the results Section 4 of this thesis.

## 1.2. Problem context

*“A community’s vulnerability to climate change will depend upon the magnitude of the impact and the community’s sensitivity and adaptive capacity” (Cooley et al., 2012, p. 5).*

The effects of climate change are increasingly being seen and discussed around the world, from rising sea levels to floods to droughts and other extreme



weather events (Hegger et al., 2014; Larrue, Hegger, & Trémorin, 2013). In many cases, the effects of these events lead to significant devastation of the environment as well as a substantial loss of community and livelihoods for people living in these regions (Burch et al., 2010; Kaswan, 2012). These effects are experienced not only during and just after a specific event but for decades and for generations to come.

Furthermore, in circumstances where inadequate governance is paired with inadequate physical infrastructure to mitigate or prevent adverse effects of environmental risks, the vulnerability of certain regions and communities is exacerbated (Twigger-Ross et al., 2014; Kaswan, 2012). The most vulnerable are often women, children, poor and elderly mainly due to the fact that they have limited access to the social, technological, and financial resources that could potentially improve their adaptive capacity and resilience (UNFCCC, n.d; Kawsan, 2012; Vanderwarker, 2012, Meyer & Peters, 2016).

The link between vulnerable communities and disproportionate effects of environmental issues highlights the need for governments to prioritise measures to improve long term resilience of communities and to reduce the adverse effects of environmental events and/or risks (UNFCCC, n.d; Kaswan, 2012). Although devastating, these environmental concerns have a way of reminding us that developing and maintaining robust governance systems that aim to provide equitable management of environmental risks is critical. This research specifically focuses on the environmental and community effects of flooding.

### **1.3. Flooding, Resilience and Civic Participation**

Given the link between climate change, flooding and rapid urbanisation, particularly in coastal regions, the importance of regular evaluation and improvement of flood risk governance and management strategies is essential (Mees et al., 2017; Wamsler, 2016; Twigger-ross et al., 2016; Driessen et al., 2016; Meyer & Peters, 2016; Walker & Burningham, 2011). Two key discussions within the field of flood risk governance surround creating societal resilience and reducing vulnerabilities. As will be defined further in Section 2, societal resilience is defined as society's capacity to recover quickly following an event as well as the capacity to adapt and transform based on the effects of the event and vulnerability is defined using Wisner's (2004) definition "characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard (an extreme natural event or process)" (p.11).

In discussions of flood risk governance there is a growing interest in

developing and implementing strategies aimed to improve resilience and adaptive capacity of communities to cope with flood risk (Driessen et al., 2016; Hegger et al., 2013; Gersonius et al., 2016; Meyer & Peters, 2016). As will be defined in Section 2, civic participation is recognised as one such tool for doing this.

Because citizens are key stakeholders in all phases of flood risk governance, their engagement is necessary to “to ensure that actions are based on a shared vision and meet the needs of all citizens” (Wehn et al., 2015; Wamsler, 2016; Mees et al., 2016; Meyer & Peters, 2016, p.12). Scholars have suggested that while there is an increasing body of literature on civic participation (Tippett 2005; Petts 2007; Koontz 2014; OECD 2015), the focus tends to be the decision making phase, in the form of consultation. This has resulted in less attention on the participatory elements of delivery and implementation phases of flood risk governance,(Wehn et al., 2015; Mees et al., 2016, Priest et al., 2016, Driessen et al., 2016, p.6).

For civic participation in flood risk governance to be effective certain conditions and factors have to be taken into account. This includes, style and strength of leadership, level of trust between institutions and citizens, genuine stakeholder engagement, collaboration with citizens as well as across industries and governmental departments, increased public awareness, knowledge sharing and early education (Kawson, 2012; Hegger et al., 2014, Dieperink et al., 2016, Meyer & Peters, 2016). When considering these factors and conditions it is important not to overlook civic participation among the most vulnerable communities as their role, in all phases of flood risk governance, tends to be understudied (Kawsan, 2012; Mees et al., 2016).<sup>1</sup>

Additionally, the focus of literature on vulnerable communities and environmental risks like flooding is often in the context of developing nations. This, then excludes vulnerable communities in developed nations, particularly in the USA, which are equally subject to the effects of flood events and have in recent years experienced devastating loss from flooding (Lumbroso et al., 2017; . As Lumbroso et al (2017) argue, these flood events “have highlighted a lack of resilience in the coastal population to coastal flooding, especially amongst disadvantaged and isolated communities” (p.1357). In order to address this gap in knowledge,

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<sup>1</sup> More recently there is also a growing interest in scholars focusing on the use of co-production methods for improving civic participation throughout the entire cycle of flood risk governance, including development and implementation of strategies (Mees et al., 2017; Mees et al., 2016; Wamsler 2016). Co-production can be understood as producing public services with citizens. While there is a healthy body of literature on co-production that is important, it is out of the scope of this research project.

Lumbroso et al (2017) have considered transferrable lessons on building resilience from developing nations, like Cuba and Brazil, to be considered in regions within the USA. This can be seen as a stop-gap to address a larger issue: a lack of research into the USA's lack of success in engaging citizens in order to improve resilience to flooding.

This gap in knowledge extends to the role of civic participation as an effective tool for engaging vulnerable communities in flood risk governance in developed nations. While there has been an increase in acknowledgement of the importance of supporting vulnerable communities as part of "widespread efforts to increase public involvement in many spheres of environmental management" (Few et al., 2007, p. 47), this has not extended to include the USA. In respect to flood risk governance, there are limited studies which look specifically at the role and potential of civic participation towards building resilience and reducing vulnerabilities within physically, socially and economically vulnerable communities in the USA. Therefore, it is necessary to critically examine civic participation modes and the influential factors that determine whether FRM strategies are inclusive and participatory within the context of a developed nation.

## 1.4 Research Questions and Framework

With the primary research objective outlined in section 1.1, the central research question is:

*What factors influence civic participation of vulnerable communities in flood risk governance, including FRM strategies?*

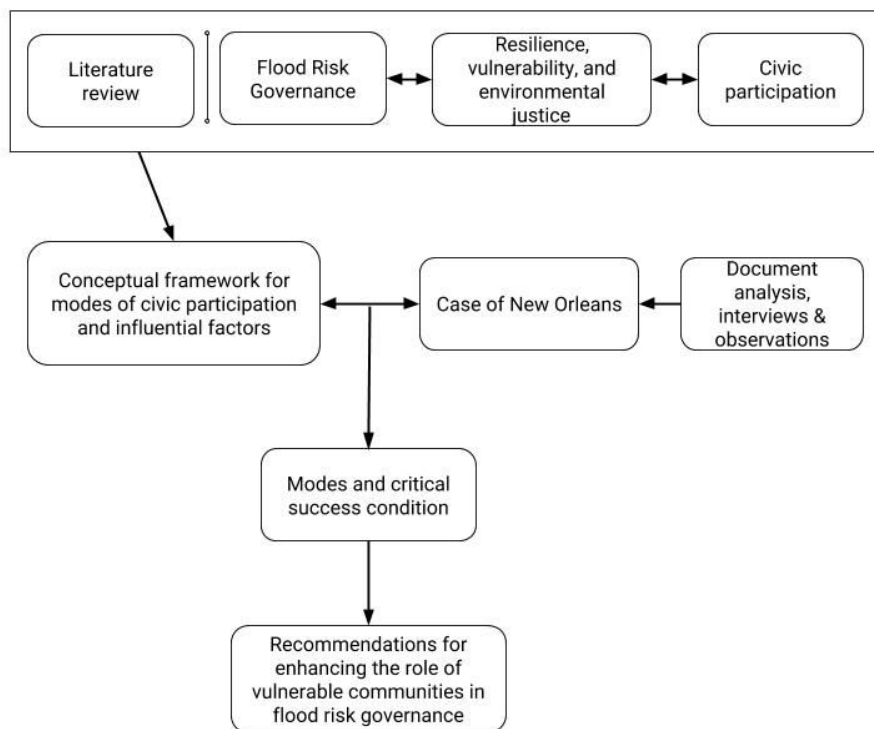


Figure 1: Schematic representation of research framework. Based on Verschuren & Doorewaard, 2010

Figure 1 is a schematic representation of the research framework. The diagram illustrates the steps used to develop the conceptual framework used to guide this research. As shown the preliminary research is narrowed down to several main topics: flood risk governance, resilience, vulnerability, environmental justice and civic participation. By exploring the current and historic research on these topics certain connections between concepts and themes among the varying literature can be identified and used to create an overview of the conditions to enable civic participation within flood risk governance. This is the first step towards answering

the above research question. The next step will be to use the conceptual framework as a guide for evaluating the case selected, using qualitative methods explained in Section 4. Lastly, the final step is to make recommendations for enhancing participation of vulnerable communities in flood risk governance as well as making suggestions for further research.

As will be seen, the findings of this study provide insights into the necessary conditions for successful implementation of various modes of civic participation for vulnerable communities. These insights are useful for policymakers and interested parties working at multiple scales towards creating more inclusive flood risk governance. Although this research study is focused specifically on flood risk and in relation to a particular region, the results may have broader relevance for other environmental risks, in other parts of the world, that require an engaged citizenry.

To answer the central research question the following sub questions are necessary:

1. What modes for civic participation can be identified in the literature on flood risk governance and civic participation?
2. What influential factors - including barriers and drivers - to civic participation can be found in literature on resilience, vulnerability, civic participation and flood risk governance?
3. What conceptual model can be designed based on the reviewed literature?
4. In the case of New Orleans, what is the role of civic participation of vulnerable communities and which factors account for this? Has the role changed overtime?

## 1.5. Thesis Structure

This thesis consists of six key sections. The overall structure of the thesis is described below.

Following this introduction of the problem context, and research objectives and aims, section two introduces the research context and addresses sub questions one and two through a discussion of the key concepts related to civic participation, flood risk governance, resilience and vulnerability. Ultimately leading to the formulation, description and illustration of the conceptual framework, which addresses sub question three.

Section 3 provides a description of various methods used and the rationale for selection of certain methods. Section 4 addresses sub question four by starting with

an explanation of the findings from the document analysis, the first part of the case study, which outlines pertinent background information of the case. The second part of Section 4 focuses on the findings from interviews and observations in the field. The conceptual framework was used as a guide for gathering and analysing the case study findings.

Section 5 is a discussion of implications of the findings from both the literature review and the case study; and the limitations are considered. Lastly, Section 6 concludes with a summary of the overall conditions for improving civic participation of vulnerable communities in flood risk governance and outlines recommendations for policy makers and for future researchers.

## 2. Towards a Conceptual Framework

### 2.1. Introduction

The aim of the literature review is not only to frame the research context but also to formulate the conceptual framework. This section will review the main arguments and consensus among scholars in respect to concepts of vulnerability, resilience, and civic participation in the context of managing flood risk or similar environmental risks.

To address research sub question one (*What modes for civic participation can be identified in the literature on flood risk governance and civic participation?*), the conceptual framework first provides an overview of commonly mentioned modes of civic participation, identified in the literature, used by governance actors including citizens, government departments, private businesses, and nonprofit organisations. These modes are used as a means to engage citizens in various strategies, policies and plans. Then, in order to address research sub question two (*What influential factors - including barriers and drivers - to civic participation can be found in literature on resilience, vulnerability, civic participation and flood risk management?*), this section provides an overview of the influential factors, identified in the literature, that facilitate or hinder civic participation.

For the literature review, fifteen journal articles were selected and reviewed from each of the main topic areas. The first topic is flood risk governance and management strategies. The second topic is the relationship between building resilience and reducing vulnerability to flooding and other environmental risks. The final topic is the role of civic participation in respect to environmental risks, namely flooding. Once selected, the articles were examined and synthesized according to the common key concepts and findings. The selection process for each article was based on a specific timeframe, selected keywords and relevance.

In respect to timeframe, with the exception of one, only articles published within the last twenty years were selected to insure that the most up to date information was obtained in regards to flood risk strategies and that the historical context of the case study was taken into account.<sup>2</sup> The keyword search included civic participation, citizen involvement, public participation, flood risk, flood risk

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<sup>2</sup> There is one article regarding civic participation from 1969 that was used regarding history of civic participation methods (Arnstein, 1969).

governance, flood risk management, resilience, environmental justice, vulnerability, public participation. In order to determine relevance, abstracts were read initially of roughly 150 articles found using the keywords search.

## 2.2. Vulnerability and Resilience in the Context of Environmental Risks, including Flood Risk

According to scholars in the field of flood risk governance, the technical (e.g. engineering) and natural science perspectives have dominated the decision making and implementation process, leaving limited attention to the social science and governance perspectives (Twigger-Ross et al., 2016; Driessen et al., 2016; Hegger et al., 2013). However, in recent years the focus among researchers has been shifting towards a more balanced, multidisciplinary perspective of flood risk governance which aims to place equal emphasis on the social, economic and governance perspectives in order to develop integrated approaches to flood risk governance. This shift in focus is part of a global effort towards improving our understanding of current and future ability of communities to cope with flooding, particularly given the increasing risk due to climate change (Mees et al., 2017, Gersonius et al., 2016; Mees et al., 2016; Driessen et al., 2016; Challies et al 2015; Nye et al., 2011).

Alongside this shift towards integrating perspectives is another discussion among scholars about the need for a more in-depth understanding of the role of citizens, particularly those most vulnerable to the adverse effects of flooding, as this is integral to improving flood risk governance (Twigger-Ross et a., 2016; Nye et al., 2011; Burch et al., 2010; OECD, 2015). In this respect, the scientific literature on civic participation in flood risk governance highlights that inclusion of citizens should not only be in the decision-making phase or in the dissemination of information but throughout the entire policy cycle, from development to implementation (Mees et al., 2017; Mees et al., 2016; When et al., 2015; Walker & Burningham, 2011).

Although researchers acknowledge the importance of involving citizens to bring about a shift in viewing them as a valuable resource and active participants at every stage, there remains to be a limited number of studies on citizens' involvement in the implementation phase. In order to determine the effectiveness of certain strategies used to increase civic participation, reduce vulnerability, and improve resilience to flooding, the implementation phase should be considered in the same respect that the decision-making phase has been (Mees et al., 2016, Priest et al., 2016). "Increased attention should be paid to the end of the policy cycle and, crucial for effectiveness, on the enforceability of objectives not only by public actors but



also by private citizens because it is their safety, in the end, that is at stake” (Priest et al., 2016, p.50).

Furthermore, vulnerability and resilience of individuals and communities is not only in the physical sense but also in the social and economic sense (Wisner, 2004; Adger, 2006; Koks et al., 2014). “Beyond infrastructure, a number of economic and social factors impact the ability of a metro area to respond to, bounce back from, and adapt positively to any negative shock” (Plyer et al., 2015, p. 7). When communities are limited in their social cohesion and support networks they are more likely to be vulnerable to impacts of flooding and less resilient to significant effects. This is further compounded by lack of access to resources that would reduce their vulnerability (UNFCCC, n.d.; Greene et al., 2015; Wisner et al., 2004; Adger, 2004; Friend & Moench, 2015). Some communities with limited financial resources may be more resilient if there is a strong social support network. In communities where there is both a lack of social and financial resources and an increased environmental risk the efforts to improving resilience are a greater challenge (Adger, 2006; Reed et al., 2013; Wisner et al., 2004).

The concept of resilience has varying definitions depending on which discipline or which perspective one is coming from. For the purposes of this thesis the definition used will be used from a combined environmental and social perspective of resilience. Environmental, meaning the ability of an ecosystem to return to functioning after disruption and social meaning the ability of a community to recover and adapt quickly following disruptions or shock. In both circumstances that aim is the same, for the recovery time to be reduced and the vulnerabilities to be mitigated (Wisner et al., 2004; Adger, 2006). The more vulnerable communities are in both the environmental and social aspects, the less resilient they will be to environmental risks such as flooding.

There remains to be a lack of understanding and literature around the role that improved civic participation can play in empowering individuals and communities and ultimately reducing vulnerabilities and increasing their resilience. Potentially, the reason for the lack of attention in this respect is that there is uncertainty among scholars and governance actors about how to ensure that it is a worthwhile process for citizens, in all phases, particularly for vulnerable communities given that their resources are limited. Furthermore, the first step towards understanding why an individual or a community does not engage with policy making

and planning processes, takes time and resources on the part of the governance actors and with limited investment in this respect it will be difficult to determine how to improve it (Akhmouch & Clavreul, 2016).

### 2.3. Defining Civic Participation

The American Psychological Association defines civic engagement or civic participation as *"individual and collective actions designed to identify and address issues of public concern"* (Delli, n.d.). In this respect, civic participation can be seen as citizens working together to make a change or difference in the community, this can include working together in both political and non-political processes (ibid). Moreover, citizens can participate in the development and implementation of governance strategies in a multitude of ways and with varying degrees of power over outcomes.

Arnstein (1969) described civic participation as being a ladder in which the lowest step signifies non participation. The middle steps signify "tokenistic" levels of participation where informing, consulting and placating citizens are the dominant aims of modes used (ibid). Lastly, the highest steps on the ladder signify the point at which citizens have formed partnerships with institutions, gained the power to negotiate and certain powers have been delegated to them (ibid). Neighborhoods, cities, and/or regions may remain in certain steps on the ladder with little to no movement in either directions while others may move through them quickly if: an opportunity arises, if they have access to resources, or if governance structures are such that it allows upward mobility of average citizens.

The symbolism of civic participation being a ladder to climb can help when trying to understand the motivation behind the use of certain modes and how entities may or may not support citizens in moving up the ladder to gain greater power and control over the decision making and implementation processes that affect their lives. On one hand civic participation can be a significant challenge, depending on the characteristics of a region and their history of civic participation, however it is also be an opportunity *"to forge an honest and creative deliberative approach that both can be more democratic and can yield genuine benefits"* (Few et al., 2007, p. 55).

## 2.4. Conceptual Framework for Civic Participation in Flood Risk Governance

Having reviewed the key concepts of resilience, vulnerability and civic participation, the next step is to outline the conceptual framework. The framework provides a synthesis of the modes and influential factors of civic participation identified in the literature. Understanding the dynamics and relationship between modes of civic participation and the factors that obstruct or encourage them is the first step towards developing strategies that reduce barriers and enable participation within flood risk governance.

Figure 2 illustrates the conceptual framework, consisting of identified modes and influential factors and is followed by a detailed explanation of how they relate to one another.

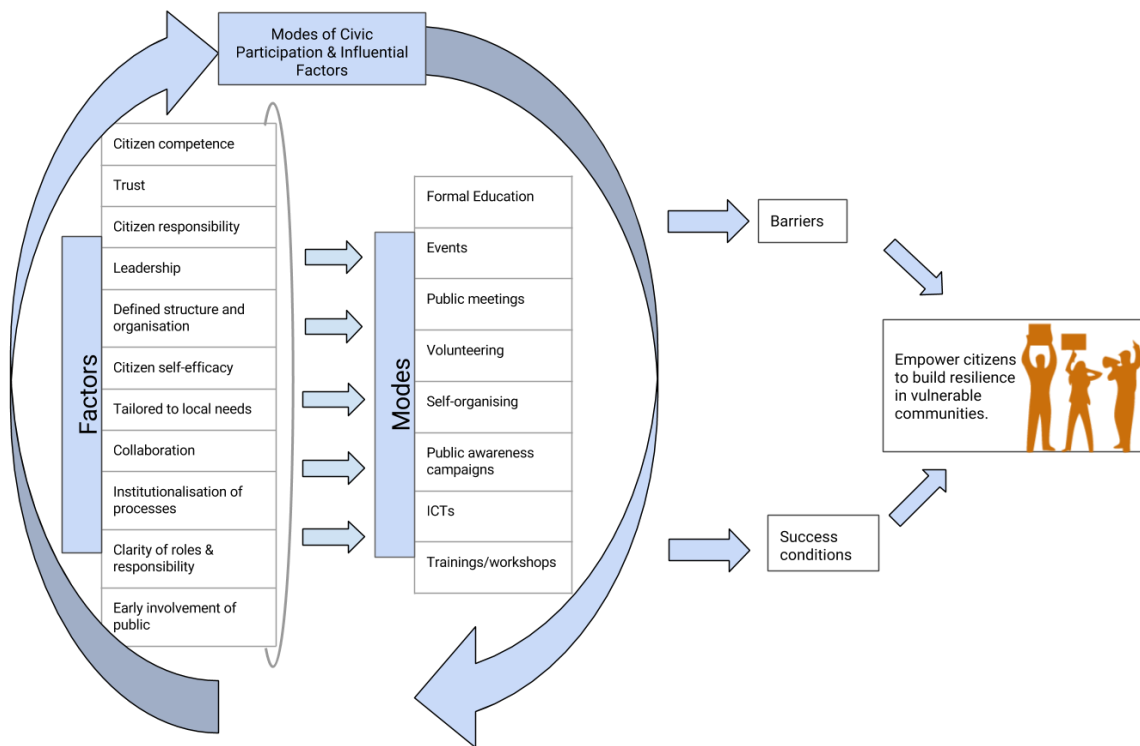


Figure 2. Identified modes of civic participation and the factors that influence their success at enhancing civic participation in FRM strategies.

### 2.4.1. Identified Modes of Civic Participation

Modes of civic participation can be categorised in several ways: they can be a tool to develop knowledge and awareness among a target audience, they can be a tool to facilitate citizens to take action using their knowledge or they can be a tool for entities to gather information from the public or provide information to the public (Challies et al. 2015, Mees et al 2016, Sorenson et al., 2016; Fung, 2015; Arnstein, 1969). In this respect, modes of civic participation have a specific audience and employ a certain technique depending on the governance actor's motivation for engaging citizens. For example, formal and informal education is a means to develop and increase citizen's knowledge on a particular subject, whereas voting on a property tax or adapting your own property to better managing flooding on site are ways in which citizens are expected to use their knowledge to make informed decisions and take action (Mees et al, 2017).

Although every mode is not an educational tool, there is often an educational component to every mode or at the very least an expectation of citizens having a certain depth of knowledge. With this in mind, the following modes are presented with the understanding that they are not exclusive of one another and often overlap.

#### *Education and Outreach*

Education and outreach are broad forms of civic participation and engagement with the aim of improving citizen knowledge and awareness, more generally or in respect to specific issues of public concern. Whether through public awareness/information campaigns or through various media outlets or community wide training events or formal education of younger generations, governance actors can facilitate knowledge development among citizens in a variety of ways (Challies et al., 2015; Fung, 2015; Mees et al., 2017; Ek et al., 2016).

Public awareness campaigns are a form of information provision (Challies et al., 2015), they can be used prior to a potential flood event or by engaging citizens in discussions around related issues, e.g. climate change; STAR-FLOOD's Practitioner's Guidebook makes reference to these methods of raising public awareness used in England, Sweden and Belgium (Raadgever et al, 2016). Raising awareness prior to a potential flood event or in some cases at the start of hurricane or tropical storm seasons are essential flood protection measures that require citizen knowledge and action. Citizens and businesses are often unaware of what to do in the event of

flooding, and this leads to poor decisions with high stakes consequences, however an effective way to mitigate this is to equip citizens with general awareness, prior to an event, about what preparatory measures to take (Raadgever et al, 2016; Challies et al., 2015). This may not provide complete assurance that citizens will take adequate preparatory measures to reduce risk, especially in areas where flooding is not a regular occurrence and so urgency is not high (Raadgever et al, 2016; Mees et al., 2017).

These types of public awareness campaigns can be carried out through use of print news, television or radio news, online news, social media, trainings and workshops, information booklets, brochures handed out at strategic locations and times, and digital platforms (Ek et al., 2016; Sorenson et al., 2016). As an example of digital platforms, in England the use of publically available online flood risk maps provides information that citizens can access in their own time (Twigger-Ross et al., 2016); the potential for this is increasing with various web-based solutions being created that allow governance actors to upload retrieved data into an online database which citizens can then access to “get up-to-date information when needed” (Sorenson et al., 2016, p.10). These databases can facilitate stakeholder information sharing and allow a “high degree of communication and collective learning” to be embedded in the planning process (Sorenson et al., 2016, p.10).

These types of information and communication technologies (ICT) are increasingly being used and researched as a means for civic participation (Ek et al., 2016; Sorenson et al., 2016; Wehn et al., 2015; Mosberger et al., 2008). Given that we are well into the Information Age (aka: Digital Age) it is pertinent to consider how existing and newly developed information systems can promote transparency and accountability among governance actions, as well as how citizens can use these systems to gain access to information and resources (Castells, 1999; OECD, 2015). Citizens are not only able to access more information through online databases and media outlets but they can also be encouraged to take part in data collection that is used to document and analyse environmental changes. Often, the analysis of such data is used to inform decision making and planning of policies and strategies that affect citizens.

For example, the concept of citizen observatories using ICT as a mode to enable citizens to take part in collecting data through a combination of “easy to use sensors and monitoring technologies”; this is in addition to gathering “citizens’ collective intelligence” through the information and experiences they document on

social media outlets, such as Facebook and Twitter (Wehn et al., 2015). The idea behind using citizen observatories enabled by ICTs is that it has the potential to generate interest and increase awareness among citizens as well as provide a starting point for more civic participation (Wehn et al., 2015), however while there is the potential that certain citizen populations will be interested in using these technologies to play a role whereas for other citizen populations the technology may be beyond their skill or comfort level and possibly lead to exclusion.

Many of the public awareness materials described above can be applied to all aspects of flood risk governance, for example using printed or online brochures and information booklets as well as workshops to inform homeowners of property level protection (PLP) measures that can be taken to reduce flooding (Challies et al., 2015; Mees et al., 2017).

Community and city wide events are regularly used modes of civic participation and engagement; these can include family centred events with games and activities, evacuation simulation events, and trainings or workshops. All of which are geared towards increasing civic knowledge and skills development. The provision of training and workshops is a means to engage citizens in order develop knowledge, learning new skills, build on their professional development as well as learning how to but this new found knowledge and skills to use (Raadgever et al, 2016; ). The types of trainings and workshops in respect to FRM strategies vary greatly, for example; a one time training session that educates citizens on how to create their own emergency evacuation plan or other trainings may span several weeks or months to educate citizens about the inner workings of city government so that they may facilitate community action or spread the knowledge within their own communities.

Formal education of younger generations is one mode that can be used to develop and instil competence and skills that will enable these generations to become active citizens in issues that personally affect them. The benefit to early education of citizens is that knowledge and understanding of complex issues, e.g. flooding, can become part of a collective “habits of thinking and action” early on to improve resilience to flooding; as these generations move into adulthood they will be well-informed “citizen-experts, understanding technically difficult situations and seeing holistic, community wide solutions” (Vilcan, 2017, p. 34; Irvin & Stansbury, 2004, p.56). Furthermore, this speaks to the importance of formulating and

designing science education that can help children to think critically about issues of flooding and work towards solving them (Ripple Effect, Foundation & Vision, 2016).

Fung 2015 refers to a concept of “individualised engagement” of citizens which can bring about more effective governance over all, the idea being that if more citizens are knowledgeable and activated to participate in a more personalised way then their capacity for problem solving is increased (p.6). Moreover, Fung (2015) links this concept of individualised engagement to engaging younger generations through his discussion of the findings of the Public Opinion Project in 2013 which found that “ younger generations seek ways to become more deeply engaged with the public problems they care deeply about and may even expect a deeper, more discursive level of engagement with organizations than their predecessors” (Fung, 2015; Public Opinion Project, 2013).

Public or community meetings are often used as an information sharing, educational or discussion tool with the aim of gathering citizen feedback on a particular project, proposal or plan which will directly affect their communities (Wehn et al. 2015; Fung, 2015; Arnstein 1969). Public or community meetings can be initiated by any of the key stakeholders: citizen groups, private business, governmental agencies (local, state or federal), neighborhood associations, public involvement firms and non-profit organisations. The scope and scale of a project, plan or proposal will determine the scope and scale of the civic involvement through public meetings.

Arnstein (1969) noted that in respect to civic participation, public meetings and hearings were among the most frequently used methods despite the concern that they could become “vehicles for one way communication by the simple device of providing superficial information, discouraging questions, or giving irrelevant answers”. Other scholars have shared a similar view of the use of public meetings as a mode of civic participation and engagement, further stating that it is a “poor educational vehicle for complex topics, not to mention grossly inadequate as a persuasion tool, though it is still used extensively” (Irvin & Stansbery, 2004, p.57; Beierle 1999). In 2015 concerns about the frequency and reliance on public meetings are still being discussed, thirty-six years following Arnstein comments, despite having gained additional knowledge about the inefficiencies of them as a means for inclusive civic participation.

Fung (2015) sites several concerns with the use of public meetings: being open means they tend to draw those that already have a vested interest in the topic being addressed and/or have a socio-economic advantage and access to resources that the broader population may not have; communication at meetings tends to be dominated by public officials and the citizen is often an observer; and lastly public meetings are “low of the scale of influence and empowerment” (p.3). This view is echoed in findings of Godshalk et al. (2010) which noted that despite various outreach attempts made (advertisements in public spaces and mailing lists) in a case in Florida to involve citizens on the Comprehensive Plan, the public meetings had low turnout.

### *Self Organising and Volunteering*

Voluntary self organising of residents through community groups, neighborhood associations and non profit organisations is another means for citizens to gain knowledge and empower themselves to take action to improve quality of life in their communities, often without government intervention (Vilcan, 2017; Mees et al., 2016; Mitlin, 2003). In regions where flooding is a regular aspect of life, these groups may take it upon themselves to formulate community wide plans to manage flood related risks. Examples of this are: creating flood action groups, devising an emergency preparation plan and delegating local residents as flood wardens (Vilcan, 2017; Twigger-Ross et al., 2016; Raadgever et al., 2016). These self organising community groups often vary in degrees of organisation, structure and access to resources; not all will be equal in this sense. Mitlin (2008) refers to this type of civic participation as “citizen self-help strategies” or grassroots, bottom up collective action strategies in which “residents facing a common need come together to provide collective goods and services” (Mitlin 2008, p. 342).

Civic participation through volunteering can be formalised and highly organised with a large number of participants and/or it can happen in an informal, unstructured way with only a few residents. Twigger-Ross et al. (2016) defines flood groups as “any two active neighbours or a formal organisation” that is focussed on developing knowledge, taking action at a neighbourhood or government level to reduce risks associated with flooding, and coordinating with relevant agencies (p.4). These community action groups rely heavily on voluntary work of residents and in some instances the partnerships are established with government entities or non profit organisations to improve the overall service. An example of this is in England where community flood action groups receive support and guidance from the Environment Agency and National Flood Forum to develop their action plans



(Raadgever et al, 2016). Furthermore, volunteer flood wardens are put in charge of relaying official warnings, communicating preparation plans and providing local knowledge (ibid).

Volunteering to assist in the implementation of FRM strategies for preparedness can also happen on a citywide or regional basis. Volunteers can be trained and utilised during an emergency flood event to support other citizens with evacuation or shelter-in-place plans as well as to assist with the physical labor aspects of flood protection, such as laying down sandbags (Raadgever et al, 2016). Furthermore volunteers may also take part in raising public awareness or collecting data (Twigger-Ross et al., 2016). The potential for civic participation in the form of volunteering is endless because there are a significant number of roles in respect to emergency preparedness.

#### 2.4.2. Factors that Facilitate or Hinder Civic Participation in Flood Risk Governance

Now that the various modes of civic participation have been identified and presented, the next step is to consider what factors determine the inclusiveness of civic participation efforts. The following factors are inclusive of both the barriers that hinder and the conditions that enhance civic participation in flood risk or similar environmental risks.

The conceptual framework was formulated using the primary conditions outlined in the “tentative framework” of conditions for resilient, efficient and legitimate flood risk governance developed by Mees et al. (2017, p. 12). The primary conditions of self efficacy, perceived responsibility, and risk awareness described in their framework were identified early on in the literature review stage, therefore these conditions were used as a starting point for the development of a list of 12 influential factors. Over the course of the entire literature review additional conditions were added, merged or adapted if they appeared in a majority of the literature reviewed. As with many of the modes of civic participation discussed, the influential factors often overlap or are intrinsically linked to one another, making it more difficult to separate them entirely.

#### *Citizen Competence, Self-Efficacy and Sense of Responsibility*

What stands out among the scientific literature and documents reviewed is that first and foremost having a competent citizenry is critical to facilitating meaningful civic participation in flood risk governance (Wehn et al., Vilcan, 2017; Sorenson et al., 2016; Mitlin, 2008; Cutter et al., 2008; Ek et al., 2016). Citizen competence refers to the general population's level of knowledge, skills and awareness of risk, more broadly as well as in respect to flooding. Citizens with a decent level of knowledge of governance systems and an awareness of environmental risks will have an increased confidence to engage with governance actors (Mitlin, 2008), particularly those that are in charge of decision making and implementation of FRM strategies. Moreover, well equipped citizens will be better prepared to take actions to mitigate the impacts and reduce recovery time after flood events, whether these are regularly occurring rain events that disturb daily life or those that are catastrophic.

Ensuring that citizens have a sustained level of knowledge, interest and skills for the long term, beyond the influence of a particular leader or organisation or the urgency of a crisis, is another critical aspect of resilient and adaptive FRM strategies. Motivation to improve citizen competence, coming from citizens as well as institutions, is often heightened following a crisis or when the effort is led by a charismatic and visionary leader or a proactive organisation, however maintaining a high level of competence among citizens is part of the challenge of developing resilient FRM strategies (Twigger-Ross et al., 2016, STAR-FLOOD Conference Report, 2016).

Intrinsically linked to the level of competence that individuals and communities have, is the concept of self-efficacy (Mees et al., 2017; Miltin, 2003). This is the belief that one has in their ability and capacity to exert control, take action and influence outcomes. Without a decent knowledge base regarding government processes and environmental risks then citizens will likely find it difficult to get to a point of believing that they can influence outcomes. Furthermore, self efficacy is connected to whether there are structured and institutionalised "opportunities to challenge decisions or to access justice"; these opportunities, if known, can legitimise the planning process and support citizens in an effort to affect change, this is especially critical for developing self-efficacy among the most vulnerable and adversely affected citizens (Priest et al., 2016, p.50, Ek et al., 2016).

Often times the most vulnerable citizens are those with limited social and economic capital which is necessary to access resources, build knowledge and make use of opportunities to challenge decision-making in the planning process

(Mees et al., 2017; Meyer & Peters, 2016). In this respect, building self-efficacy of the most vulnerable citizens faces several obstacles. To overcome these a significant level of investment is required if the aim is to make FRM strategies socially inclusive and equitable (Mees et al., 2017, Ek et al., 2016, OECD, 2015).

In the tentative framework devised by Mees et al. (2017) perceived responsibility among citizens is considered a primary condition, alongside risk awareness and self efficacy, in determining the legitimacy and resiliency of flood risk governance. If the majority of citizens are well informed and feel they have the capacity to take action to affect change as well as a personal responsibility to do so, then the overall population's resilience to flooding will likely be improved (Raadgever et al, 2016; Twigger-Ross et al., 2016; Mees et al., 2016; Mees et al., 2017). Citizens' sense of responsibility is not only linked to self-efficacy and competence but equally to whether they view flood prevention and mitigation as their responsibility. This question of whose responsibility it is and where the line is drawn is also connected to another influential factor which is trust between citizens and the institutions that are perceived as being in charge of providing and maintaining public services.

#### *Establishing Trust between Citizens and Institutions*

The dynamics of trust between citizens and institutions are complex and deeply ingrained. Flood risk governance faces several dilemmas when it comes to the effect of trust on citizens willingness to participate in development and implementation of FRM strategies. On one hand, trust in institutions may reduce civic participation because stakeholders, citizens and businesses alike, "have trust in the traditional defence measures" or "trust that their losses, in case of a flood, will be compensated" so are less likely to implement their own private prevention and mitigation measures (Dieperink et al., 2016, p.4477; Raadgever et al., 2016, p.29). Although having effective traditional defence infrastructures are essential to FRM strategies, the reduced sense of civic responsibility linked to "perceptions of infallibility are also potentially detrimental to societal resilience" (Raadgever et al., 2016. p.29).

In several European countries, where FRM strategies were examined by STAR-FLOOD, it was found that this dependence on traditional flood defences not only lead to a perception of infallibility but a view that it is the government's responsibility to manage flood risk (Ek et al., 2016). This expectation may be justified in some countries where legislation has determined this to be the responsibility of the state however in places where this is a misguided expectation it can lead to issues of confusion and distrust because citizens are under the illusion, whether

justified or not, that it is entirely the government's responsibility, and if they are adversely affected by an event blame will likely be placed on government.

This speaks to another dynamic of trust that affects civic participation, that is a lack of trust in institutions as a result of either limited or unequitable access to justice, corruption within government systems, and a general distrust of authorities; elements of mistrust vary from country to country (Ek et al., 2016; Alexander et al., 2016; Fleischhauer et al., 2012). Furthermore, confusion or uncertainty in respect to how stakeholder input will be used in the planning process; whether to develop action plans, to build consensus or simply gather data, could "result in mistrust and consultation 'fatigue'" (Akhmouch & Clavreul, 2016, p.6). There is a fine balance to be struck when considering how often and when to seek input in consultation with citizens and other stakeholders. Although the intention of consultation may be to establish trust and build collaborative efforts, if it is carried out with no clear plan for how to translate the input into actionable outcomes than over time trust, as well as self efficacy of citizens, will be diminished.

Trust is a critical influential factor in promoting active civic participation and engagement in flood risk governance (OECD, 2015, Mees et al., 2017, Few et al., 2007). Governance actors have a challenging task when it comes to establishing trust. First, they have to understand the underlying reasons for a lack of trust or high levels of trust leading; both to low levels of participation. Secondly, they have to strike a balance between engaging citizens in collaborative consultation efforts without overburdening them and potentially eroding trust. Thirdly, in respect to collaboration governance actors must clearly communicate the plan for how input is going to be used and who is responsible for what. Lastly, governance actors must also demonstrate stable and effective collaboration among themselves while also communicating the message that the responsibility of developing and implementing resilient FRM strategies is shared among all governance actors, including citizens (Akhmouch & Clavreul, 2016; Priest et al., 2016; Raadgever et al., 2016; Vilcan et al., 2017; Godschalk et al., 2010; Nye et al., 2011; Challies et al., 2016; Wehn et al., 2015; Fung, 2015, Mees et al., 2017).

### *Collaborative Efforts and Clarity of Roles and Responsibilities*

There is a general consensus among the literature regarding civic participation, resilience and flood risk governance that collaborative efforts between

governance actors themselves as well as with citizens is a key influential factor for improving civic participation and societal resilience (Priest et al., 2016; Raadgever et al., 2016; Vilcan et al., 2017; Godschalk et al., 2010; Nye et al., 2011; Challies et al., 2016; Wehn et al., 2015; Fung, 2015; Mees et al., 2017). However, it is not only important to work in collaboration but to clearly communicate with all stakeholders who is responsible for what; otherwise confusion, frustration, cynicism, distrust and inefficiencies will creep in and hinder those well intended collaborative efforts (Fung, 2015; Akhmouch & Clavreul, 2016). Therefore, the combination of collaborative efforts with clearly defined and communicated roles and responsibilities go hand in hand as key influential factors:

*“Multi stakeholder collaboration and public participation is essential for improving the legitimacy of flood risk governance and facilitating the ownership of risk responsibility at multiple scales” (Leusink, 2016, p27)*

This directly relates to the previously discussed factor of citizen’s sense of responsibility; if the “rules of the game” in respect to roles and responsibilities are clearly communicated “to all involved parties” then the “processes will be more successful” (Dieperink et al., 2016, p.4476). Furthermore, if governance actors make clear the intentions for engaging citizens and there is a clearly outlined and consistently used pathway in place that leads to achievement of the main goals of those engagement efforts, then citizens may overtime “come to support the institutions and practices of participation” ( Sorenson, 2016; Fung, 2015, p. 1).

### *Early involvement of citizens*

Various scholars also highlight that prioritising genuine collaborative efforts means creating participation opportunities earlier in the planning process, thus embedding participatory outcomes and shifting the role of citizens from a passive one as a recipient of information to one as an active participant with a prominent role in both decision-making and implementation processes (Priest et al., 2016; Akhmouch & Clavreul, 2016; Fung, 2015; Wehn et al., 2015; Sorenson et al., 2016). This relates to an overall “change of mindset” on the part of citizens and governance actors in respect to having shared responsibility for managing flood risk as well as helping to avoid a frequently experienced issue in planning which is “confrontation with communities just before project implementation” (Wehn et al., 2016, p.234).

As with many of the factors presented thus far, early involvement relates back to all of the other factors mentioned. Bringing citizens in at an earlier stage in the process can help to establish trust through collaborative efforts, build consensus, address misconceptions about responsibility and better understand what the needs of a community in order to make plans that will have a better fit. Citizens may then be more likely to take ownership, perceive themselves as sharing responsibility and eventually investing in the processes through financial resources or their time. Moreover, this is important when it comes to thinking about funding sources, while there may be a greater source of funding from multiple sources in the recovery period, as this funding runs out it will likely be that any upkeep of services will be expected to be paid for by citizens through taxation measures.

#### *Investment of time & resources*

Early engagement and other improvements to collaborative efforts represents the need for “changes in the funding structure” (Wehn et al., 2015, p. 233) meaning that early engagement and partnership level of citizen participation requires increased funding or more allocation of resources towards these efforts. When studying stakeholder engagement processes outlined by OECD Water Governance Initiative, Akhmouch & Clavreul (2016) noted that a critical barrier to stakeholder engagement was “lack of funding to sustain the engagement process, logistical expenses related to meeting venues or support material and the lack of competent and dedicated staff” (p.6).

Citizens as well as governance actors investment of time and resources, namely financial resource but also allocation of staff, time and other assets, are all essentially consideration for supporting the creation of participation processes as well as maintaining them for the long term. If the aim is to work towards institutionalising civic participation processes for FRM strategies into the governance agenda, then an adequate budget for the task is required. This budget can be met through a combination of actors supporting it: government departments, citizens, philanthropic investors of foundations and non profit organisations.

Furthermore, In order for political leaders to support and allocate resources towards something it will likely need citizens support however civic participation in FRM strategies may not take precedence over other competing priorities, particularly if the public’s knowledge and understanding of risk is not adequate and/or if the

public lacks trust in the institutions ability to properly make use of resources.

### *Tailored to Local Needs*

*“[L]ocalised participatory planning processes can best incorporate lay-local knowledge, represent community interests, provide relevant information, and develop plans that fit local context and community priorities” (Challies et al., 2015, p. 2)*

Scholars have commented on the importance of keeping in mind local needs when not only deciding on how and when to do civic engagement efforts but also when designing FRM strategies because there is no “one size fit all solution” (Fung, 2015; Challies et al., 2015, Raadgever et al., 2016, p. 7). Key to this is understanding the local context and tailoring strategies to fit local needs. This is another key influential factor for civic engagement in flood risk governance because without understanding local issues and knowledge any ideas or plans made in isolation will be less likely to receive citizen support and take hold for the long term. Few et al. (2007) and Driessen et al. (2016) argue that in order to establish an inclusive and deliberative approach to governance arrangements, key stakeholders knowledge and opinions should be at “placed at the centre of decision-making” and plans should be tailored “the existing physical, socio-cultural, and institutional context” (p. 48, p 52).

### *Institutionalisation of well organised and defined structures for civic participation*

Establishing structures that allow for civic participation are also considered essential factors for civic participation (Priest et al., 2016; Fung., 2015; Challies et al., 2016). Embedding participatory governance structures into the way of doing things; making it the status quo to have a structure for establishing community groups and neighborhood associations to represent communities in an organised way will results in “more successful and inclusive” engagement measures because when this structure and network is absent engagement remains within the local authority and not trickling down to the communities (Priest et al., 2016; Challies et al., 2016, p. 3).

## 2.5. Conclusion

This section set out to provide an overview and analysis of both the

commonly discussed modes of civic participation, in general and specifically for environmental risks, and the influential factors which facilitate or hinder the process of civic participation. The analysis and conceptual framework outlined in this section was used to frame the case study part of this thesis, discussed in Section 4 of this report. Prior to delving into the findings from the case study, the following section will describe the methodologies used to capture the details of the case and provide a rationale for the selection of particular methods.

## 3. Methods

This chapter provides the rationale for selecting certain qualitative research methods and describes how they were used to collect and analyse the data. In order to facilitate the various aspects of this research and to answer the sub questions, data was collected in two parts. To address sub-questions 1, 2 and 3, an overview of the scientific literature was conducted, as previously discussed in section 2 of this report which also outlines the conceptual framework. For the remaining sub-question 4, the conceptual framework was used to guide the collection (e.g. devising interview guidelines and selecting events to observe) and analysis (e.g. determining preset codes in the coding process) of data collected in the field. A review of case specific publications was completed to provide a background of the case; followed by a series of interviews with a range of professionals and observations of community, city and state wide events.

The following qualitative research methods were used to examine what influences civic participation of vulnerable communities in flood risk governance in a particular case.

### 3.1. Case Study

Every region faces its own environmental risks and governance challenges, therefore no one solution can be implemented everywhere and expect to see the same results. Two regions may share comparable environmental risks however the political process or cultural structure may be incomparable. Accounting for regional differences often plays a substantial role in developing policy strategies. Valuable and transferable lessons can be gained from certain cases, if adapted based on regional needs. The city of New Orleans in Louisiana became one such example, on a global scale, after the social and environmental disaster of Hurricane Katrina in 2005.



The city of New Orleans is particularly suitable for the research study for the following reasons: (1) physical characteristics, being that it is a coastal region with a history of riverine and/or surface water flooding from rain events (2) recent experiences of negative environmental and social impacts linked to inadequate physical and governance infrastructure; and (3) within the last 12 years, following Hurricane Katrina, the city has been in the process of adapting their strategies for managing flood risk and in that process have trialed ways to involve more citizens.

The case study method allows for an in-depth examination into the nuances of flood risk governance and civic participation in respect to vulnerable communities. The ins and outs of this subject, and in a particular region, can be better explored through qualitative (in-depth) research methods rather than quantitative (breadth) research methods (Verschuren & Doorewaard, 2010). Although selecting a single case study makes it difficult to apply the findings to a broader range of cases and/or populations, it does serve to provide detailed knowledge and insights for making well-informed recommendations (Verschuren & Doorewaard, 2010). Furthermore, insights gained can potentially support the need for more substantial research studies looking at multiple case examples in multiple regions.

The data collection for this case study includes several parts: a literature and document review of case related journal articles, newspaper and social media articles, websites/brochures, books, government publications, non-profit and private business publications (plans and/or reports); a series of in depth interviews with experts in the field; and participation observations at community, city and state wide events. The reason for using several methods and materials for data collection is to triangulate the different sources of information. Triangulation of multiple methods and/or sources can help to develop a “comprehensive understanding of phenomena” and has been viewed as a strategy for testing validity through the intersecting of different sources (Carter et al., 2014; Patton, 1999).

### 3.1.1. Interviews

Over the course of the study, for a 7 week period, a total of 20 experts were interviewed using a semi-structured interview method. Out of 16 scheduled interviews, 4 interview sessions were conducted with 2 interviewees at the same time. Of those contacted for interviews, only a small selection were unable to

accommodate an interview; these being the Department of Public Works, various neighborhood association leaders, Department of Homeland Security and Emergency Preparedness, Dana Brown & Associates - Landscape Architecture firm, and I See Change (NGO using digital tools for engaging citizens in collection of data from their environment).

Two types of sampling methods were used, purposive and snowball sampling, to generate the sample of expert interviews. Purposive sampling is a method of selecting interviewees based on particular criteria relevant to the research question(s) (Mack, 2011). In this case, to gain a well rounded body of data interviewees were selected based on their knowledge and expertise in a range of areas: from policy design, engineering, urban planning, landscape architecture, emergency preparation planning to communication, research, outreach, education, community engagement and civic participation. Furthermore, interviewees were selected from local non profit organisations, private for profit firms, government departments and research institutions. All were selected based on their work related to flooding and/or civic participation. Lastly, another key selection criteria was for all of those interviewed to have specific expertise regarding New Orleans and surrounding regions.

The other sampling method used was snowball sampling, also referred to as “chain referral,” and is considered a type of purposive sampling (Mack et al, 2011). It is used as a way to reach groups that might otherwise be more difficult to access or to be aware of as an outsider with less familiarity of who the key players are. With this technique, the pre-established contacts of the researcher use their network to refer the researcher on to others that could potentially contribute to the study (ibid). This method was used throughout the period of data collection in the field, as more contacts were made the sample of potential interviewees increased through use of this method.

The timeframe for each expert interview was approximately 1 to 1.5 hours. Of the 16 interview sessions, 12 were conducted in person and 2 (with 4 interviewees) by phone, using a semi-structured interview guideline (Appendix B). The literature review and analysis of case specific publications were used to develop the interview guidelines which were designed to gather information beyond what was provided in the documents and to seek insight into the implementation processes from those with direct experience and expertise.

The semi-structured interview is a widely used method for engaging people in conversation using a set of questions about a selected topic, in this case for civic

participation in flood risk governance, with a view to gathering data about their experiences, expertise, thoughts and opinions on the topic (Miles and Gilbert, 2005 p.65).

The interview questions focused mainly on (1) the modes of civic participation in flood risk governance that the interviewees were using or had the most experience of using, (2) the set-up, dynamics and inclusiveness of those modes (3) the influential factors, include barriers and drivers, to civic participation within New Orleans area, generally and in respect to flood related issues. The interview guidelines can be found in Appendix B.

The semi-structured interviews were recorded, transcribed and coded using an open coding method (e.g. Hennik et al., 2011; Strauss & Corbin, 1990). NVIVO software was used as an organisational tool for coding of interviews. Preset codes were used as a starting point, based on the conceptual framework and the topic headings and questions used in the interview process, however over the course of coding an additional ?? codes were identified.

### 3.1.2. Participant Observation

Participant observations were carried out at 13 different community, city and state wide events. Events were selected for observation based on whether they were related to an aspect of managing flood risk and if they demonstrated a particular method for involving citizens. The events ranged from primary educational events held at public recreational spaces to public neighborhood meetings convened to consider potential green infrastructure projects for private homes and to emergency preparation events.

During participant observations, informal discussions were held with citizens and professionals alike. These informal discussions in addition to observations were documented in detailed field notes and reflected on as part of the overall data, no audio recordings were taken in these instances. These informal discussions with members of the study population were key to getting to know what the “diverse perspectives are and in understanding the interplay among them” (Mack et al, 2011 p. 13). Furthermore, the method of participant observation is a useful tool for developing a nuanced understanding of the physical, social, cultural, and economic contexts of the study population; “the relationships among and between people, contexts, ideas, norms, and events; and people’s behaviors and activities – what they

do, how frequently, and with whom” (Mack et al, 2011, p. 14).

While observations can be a useful tool to examine the disparities between what people say in interviews and reports to what is done in reality (Mack et al., 2011), there is a criticism that participant observation can introduce bias because the method is reliant on reflections and interpretations made by the individual researcher (May, 2001). Although this bias is a genuine limitation of using participant observations, other scholars maintain that observation may be more impartial than other types of data collection because it is driven by the activities or events themselves and do not impose a hypotheses or presupposed idea.

### 3.1.3. Transcription and Coding Process

Following the collection of data in the field, all interview recordings were transcribed and uploaded into NVIVO coding software along with detailed notes taken post observations. Observations and interviews are the sources used in the coding process. The coding process started with a preset list of codes which were taken from the conceptual framework of identified modes and influential factors discussed in Section 2 of this report. An additional preset code used from the start of the coding process was “inclusiveness” as this was covered in the interviews to address the question of inclusion of vulnerable communities. While coding the interview responses, additional codes were added to reflect responses and observations that were more nuanced than the factors or modes of the conceptual framework and if the interviewees raised a point that did not fit into the preset codes. The full coding structure can be viewed in Appendix D

The bar graphs presented in the second part of the results section, Section 4, are a visual representation of the coding results. Sources refers to interviews & observations and references refers to the total number of mentions made by all sources regarding a certain code. An example is that if interviewee X mentioned the use of public meetings 5 times and interviewee Y mentioned the use of public meetings 8 times during the course of their interviews this would be shown as 2 sources with a total of 13 references for public meetings.

## 3.2. Conclusion

This section provided a thorough explanation of the research methods used in this thesis to outline how the following results were gathered in the field.

## 4. Case Study Results

The results of this study are presented in two parts. The first part consists of a summary of findings from the case specific document analysis regarding the social, economic, environmental and historical context of the case. As mentioned in the methods section, Section 3, the case information was gathered from multiple sources: scientific journal articles, news articles, books and reports produced by local governance actors (e.g. private businesses, civil society organisations, and government departments).

Following on from a presentation of relevant background information, the second part of this section describes the key findings from interviews and observations collected in the field.

### 4.1. Background

In 2005, New Orleans was hit by a devastating hurricane [Katrina] that “dismantled a fatally defective levee system,” which led to flooding and a state of emergency being declared (Faussett & Robertson, 2015, para. 2). Unfortunately for New Orleans, Hurricane Katrina was only the beginning of the disaster. In the weeks following “revelations of malfunction and failure” and deep seated inequalities and injustices were exposed and the public, US and abroad, watched as New Orleans became a “global symbol of American dysfunction and government negligence” (Faussett & Robertson, 2015). This disaster was emblematic of failed governance on multiple levels, however it also became a catalyst for wide scale attempts to improve the physical and organisational infrastructure of the city.

Images of ruined homes within a floating city, residents fleeing and relocating into make-shift housing developments and stories of chaos and criminality became synonymous with New Orleans post hurricane Katrina. This portrayal however misses the vitality and charisma of New Orleans, with its vibrant communities and culture. The connection that people have with this city is the driving force behind the efforts to reimagine New Orleans as a new, improved and more resilient version of what the city was before Katrina.

In the 12 years since Hurricane Katrina, New Orleans has experienced a resurgence of “*young urbanist, artist, and techies*” flocking to the city and significant

funding from private investors and state/federal institutions has helped with the effort to rebuild infrastructure and “the atmosphere of hope is starting to penetrate the neighbourhoods where ordinary citizens live” (Harkness, 2016, p. 10). Fostering urban resilience, incorporating adaptive strategies, and experimentation to catalyse a sustainable city transition is a complex task. It may not solve all of the challenges faced by New Orleans, however if done well it could potentially improve the city’s capacity “to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience” (City of New Orleans, 2015, p.10).

#### 4.1.1. History of New Orleans, Environmental and Social Dynamics

For the first two hundred years, New Orleans’ inhabitants mainly settled in the high ground close to the Mississippi River. However, in the early 20<sup>th</sup> century there were advances in pumping technology which allowed the city to start draining swampland in low-lying parts of the city and region. This led to the spread of new development into previously uninhabitable areas of the city and region and with more development came increasing suburbanization. Urban sprawl created challenges for the city’s basic services including water management systems, flood protection systems and the capacity to connect residents to regional job opportunities. (City of New Orleans, 2015).

Louisiana is dependent on fossil fuels as a major source of revenue and New Orleans is at the center of this, given its geographic location. For the past century, fossil fuel extraction has supported the region’s economy and residents have come to rely on jobs within the oil and gas industry. However, the unfortunate side to this is the environmental degradation caused by thousands of miles of pipelines cutting through vital wetlands and further exacerbating the loss of coastal lands and trees. These wetlands, coastal lands and trees make up the natural flood protection systems and without them inhabitants of the Gulf Coast region become increasingly vulnerable to storms and climate change (City of New Orleans, 2015; LA SAFE, n.d.). These challenges still exist today and the effects of Hurricane Katrina became a catalyst for the city to truly began addressing these challenges.

#### 4.1.2. Social Effects of Hurricane Katrina

In August 2005 after the storm ended, 80 percent of the city was flooded. Some areas experienced only one foot of flooding while others were up to 10 feet underwater (Plyer, 2016). The business district and main tourist areas were mostly unaffected (Plyer, 2016). In total, a minimum of 986 residents died during the

disaster and approximately 1 million people in the Gulf Coast region were displaced and a further 600,000 households were relocated after 1 month (Plyer, 2016). The city lost half of its population following Katrina, however the Data Center reported in July 2015 that the population has returned to 80% of what it was in 2000 (Plyer, 2016). Although it's positive that the population is getting back to where it was, it must be acknowledged that in 2013 "there were nearly 100,000 fewer black residents than in 2000, their absences falling equally across income levels," while white, wealthier population only saw a decrease of 11,000 residents (Fausett & Robinson, 2015, para. 4).

In New Orleans alone where 134,000 housing units were damaged, which were 70% occupied at the time of Katrina. The federal government spent \$120.5 billion with the majority at \$75 billion being spent on emergency relief alone (Plyer, 2016). The Data Center report from 2015, notes that philanthropic recovery funding reached \$6.5 billion which was over double what was donated following the South Asian Tsunami in 2004 or 9/11 (Plyer, 2016). Despite the significant effects on people's lives and the sheer amount of damages associated with this disaster, private insurance claims covered less than \$30 billion of total losses (Plyer, 2016).

In the aftermath of Hurricane Katrina, New Orleans was faced with starting over in almost every aspect of city life. Many displaced citizens have permanently relocated out of necessity. For those that never left, those that returned and newly arrived residents New Orleans "has become a giant workshop to test solutions to problems – in housing, education and social mobility – that are confounding the entire country. Success or failure will nonetheless be gauged ward by ward, neighbourhood by neighbourhood and block by block" (Fausett & Robinson, 2015, para. 17&18).

#### 4.1.3. Infrastructure, Culture and Adapting to the Environment

*"Despite being a place that is so defined by hydrology, we have systematically hidden water from our daily experience" (City of New Orleans, 2015).*

Water is a major resource for New Orleans being on the Gulf Coast and feeder city for the Mississippi River. This resource has been crucial to trade as "25% of US waterborne exports are shipped through Louisiana's five major ports" and although a great source of revenue for the city, it is also the main source of its vulnerability (City of New Orleans, 2015, p.14). What led to the major devastation of Hurricane Katrina was not only the hurricane but the faulty levee structure and the decline of the natural storm protection systems of the coastline. The port has led to a reduction of trees and loss of wetlands both of which are a natural defence against storms,

therefore less natural defences in place to slow the energy of the storm. Unfortunately, it took a major disaster to force the city and the federal government to consider how it failed to work with the natural environment. Furthermore, repairing and rebuilding the “green and blue infrastructure” of the city is an opportunity to create jobs, skills training, education and greater public awareness of environmental issues.

One of the city’s key strategies for bringing the natural environment into their daily lives is through educational opportunities and development of green infrastructure to manage pluvial flooding inside the levees. They aim to incorporate the cities hydrology and geography into education as well as to provide more outdoor recreational spaces (City of New Orleans, 2015, Ripple Effect, 2016; Liu et al., 2011). Getting people of all ages and particularly young children to experience and learn about the natural world is an opportunity to enhance their connection and respect for the environment. Additionally, it can show citizens of any age that they have a role in thinking creatively about the future of their city and how they might take part.

Since hurricane Katrina, the City of New Orleans has sought guidance from the Netherlands to learn how to improved not only the levee system but to instill a culture in which citizens value their relationship with water and attempt to find ways of “living with water” as opposed to trying to remove it from their daily lives (Wagoner & Ball Architects, 2013). One lesson taken from the Dutch dialogues that has been raised various times within the case specific literature is the importance of investing in a “*new generation of emerging environmental stewards*” and by creating public awareness in order to become, as the city hopes, “*a global leader in sustainable environmental management*” (City of New Orleans, 2015, p.34).

In addition to investing in recreational spaces, the Green Infrastructure Demonstration Projects are a combined effort between The New Orleans Redevelopment Authority (NORA) and Sewerage & Water Board of New Orleans (SWBNO) to increase public awareness about the ways in which underutilized spaces can be used to collect storm water while at the same time be designed to improve the aesthetics of a neighbourhood. The project does this by “transforming vacant lots into rain gardens that draw runoff from the street, store it temporarily, and capture many of the pollutants it carries” (City of New Orleans, 2015, p.39, Liu et al., 2011).

Another project which uses design thinking, demonstration and



experimentation together to educate children about their environment is Ripple Effect. The project is a collaboration between local teachers, designers, engineers and water management experts aimed at incorporating “water literacy” into design based curriculum, for example using topographic models to teach students about the connection between water, land and people in the city of New Orleans (Ripple Effect, KIPP Central City Primary, n.d.).

This section set out to provide information regarding some elements of the historical background of this case, however it is not an exhaustive discussion of the city’s history and relationship with water. Taking into account this baseline of knowledge and a consideration of recent attempts to re-envision a more resilient and adaptive city, the next step in this study is to outline the key findings from the interview and observation processes to determine where the city is today in respect to citizen’s participation in managing flood risk.

## 4. 2. Findings from Interviews and Observations

This section presents an overall analysis of findings from both interviews and observations; and the coding process which was used to identify consensus and dissent among interviewees and observations. The final part of this section presents the interviewees responses and observations in respect to the inclusiveness of the civic participation process, the visions for change that interviews expressed, and discussion of several additional areas of focus that interviewees emphasised which were outside the defined categories.

### 4.2.1. Modes being used in New Orleans

The following section provides an overview of the predominantly used modes of civic participation within New Orleans. In Figure 4 the bar graph depicts all of the modes of civic participation that were mentioned by stakeholders during interviews and observed in action in New Orleans. The blue bar represents the number of sources (interviews and observations) that mentioned those modes and the red bar represents the total number of references made by all of the sources combined.

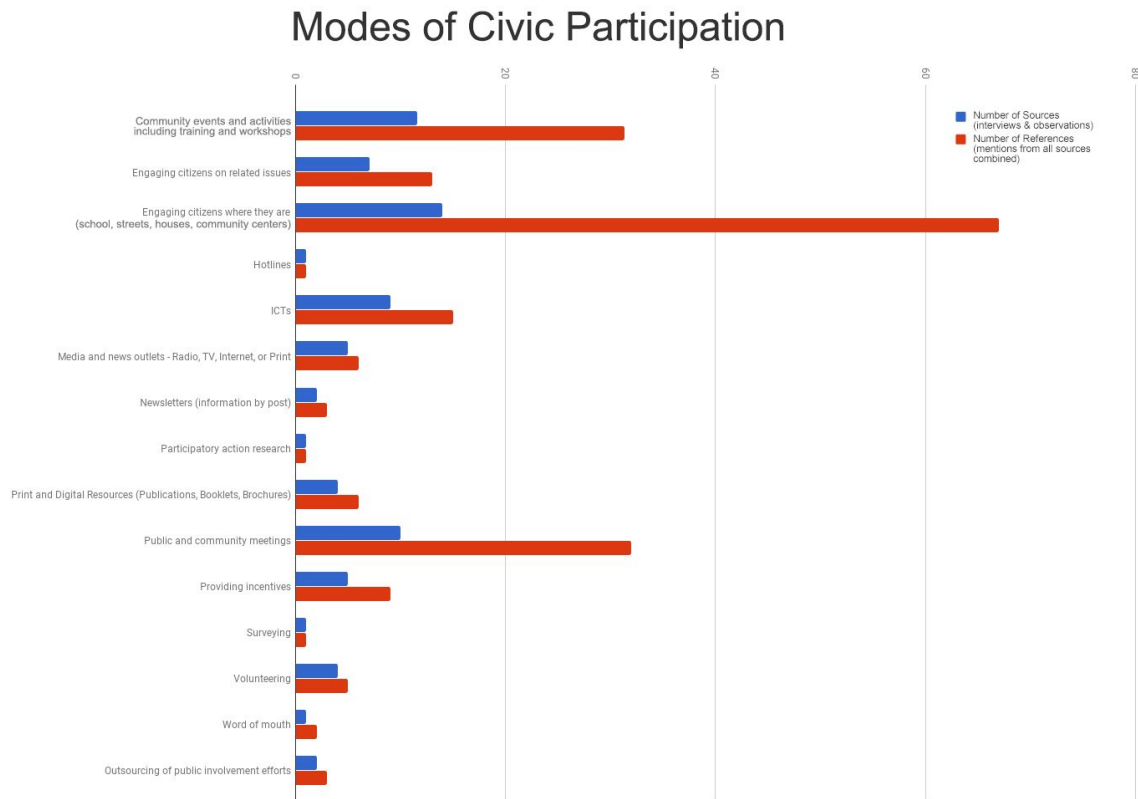


Figure 4: Coding structure and references for civic participation modes in New Orleans. Bar graph illustrates in blue the number of sources (interviewees & observations) and in red the number of total mentions from all sources.

### Education and Outreach

The most commonly referenced and observed modes of civic participation using education and outreach as a means to engage citizens in flood risk governance and FRM strategies were:

- ❑ *Community events and activities*, including training and workshops, with 12 sources and 32 references.
- ❑ *Public and community meetings* had 10 sources and 32 references.
- ❑ *Engaging citizens where they are* had 14 sources and 67 references (this includes engaging younger generations and engaging through existing community groups and organisations).

As can be seen, many stakeholders referred to “engaging citizens where they are”, meaning that more attempts were being made to go to the places where citizens spend their time. For younger generations, this usually means schools, public parks, libraries, neighborhood areas. For adults this can mean engaging

citizens through existing organisations, through their children, or groups that they already have an established relationship with, such as other non-profits, church groups, and/or neighborhood associations.

Additional modes with less than half of interviewees mentioning them and with lower numbers of references (e.g. below 16) were: ICTS, engaging citizens on related issues (e.g. public transportation or roadways), public information campaigns (e.g. print and digital brochures, reports, tool kits and/or media and news outlets), use of public spaces for demonstrations and signage at project sites, hotlines, outsourcing public involvement, participatory research, volunteering, surveying, providing incentives (e.g. financial compensation, food at events, or games with prizes) and word of mouth.

*Community events and activities*, including workshops and trainings, tended to be a prevalent mode as found in the interview responses and with the participant observations. Community events and activities ranged from family centred events like Bayou Day and Water Words: Festival of Environmental Literacy to city wide evacuation preparation events such as City Assisted Evacuation and Readiness Ride.

Interviewees noted, and it was observed, that in some cases their role was to organise an event, while at other times their role was to support events of other non profit or citizen groups by being in attendance and “tabling,” meaning that they were there to provide information in print form and through discussion as well as to offer an interactive tools that could be replicated and used at multiple events. Often, those in the role of supporting these events but not organising them tended to be from government departments, as mentioned by an interviewee that there is a “*balance to be struck when it comes to what kinds of events or activities that we initiate versus those that we participate in and don’t necessarily own*”. This view of taking a more supportive role rather than directing was echoed by several other interviews, stating that supporting events when possible to help educate citizens by bringing in more “*technical folks as well as some materials*” was a summary of their engagement activities. Furthermore, non-profit organisations as well as government departments tended to support other non-profit organisation events that they were not part of organising or they might collaborate to put together an event.

Several of the non-profits and government departments offered training and workshops. These workshops and trainings range from an 8 week Civic Leadership Academy organised training in which participants learn about city government to workshops that show citizens how green infrastructure can be used on their property to reduce flooding or short online and in person emergency preparation trainings.

Although the use of *public awareness and information campaigns*, including ICTs and printed materials, only featured in a small amount of the interviewees responses, it was observed that all of the organisation and government departments actively working of flood risk management and civic participation (including those interviewed) had both printed and electronic brochures, information booklets and handouts as part of their training and workshops. Furthermore, while a small amount of interviewees mentioned the use of media outlets, all organisations and government departments had an active Facebook page, website, Instagram and Twitter accounts used to communicate with target audience and other professionals in the field.

One interviewee noted that the scale of the project would determine the level of media outreach, as an example if a project to place pipes under a street would cause disruptions to traffic therefore affecting a wider audience, than the use of radio and tv news was important in this instance. While another interviewee mentioned that occasional press and media was used to boost citizen engagement in a particular workshops or just to get the word out about their work. Another example of the use of media that was observed to be commonplace but not mentioned has much within the interviewees was in respect to the role of media, mostly news and radio, for emergency preparation planning in general as well as at the start of hurricane season and more specifically in the lead up to a storm. In this respect, media played a significant role in informing the public, not only about the potential effects of a storm but also the practical information about where to call or go to for help and how to prepare, whether evacuating or sheltering in place.

The second most prevalent mode of civic participation, mentioned by interviewees as well as were observed, were *public meetings*. *Public meetings* ranged from small community led neighborhood meetings to discuss a particular topic affecting their neighborhood to public meetings initiated to discuss project specific information or proposals. According to interviewees, the scale of the projects played a role in determining the size of the public meetings. Interviewees had a mix of experiences, some were part of initiating public meetings while some were invited to attend meetings however all interviewees have taken part in numerous public meetings throughout their work experience. A majority of the interviewees responses commented on the downsides of public meetings as a tool for engaging citizens. Several reasons mentioned for why public meetings were less effective was that the turnout was often highly variable, with some meetings having a high turnout while other meetings only around 5 people were in attendance and often the turnout tended to be the same people from the community at every meeting .

Other interviewees noted that the structure of a typical public meeting doesn't allow for real collaboration with citizens, remarking that:

*"15-30 minutes of engagement is not even scratching the surface" and "we have relied on them in the planning circles because that is what you have the time and resources for and you put people in the position of saying yes or no to something that they are only beginning to understand".*

Several other interviewees noted that public meetings "start to get off course" because attendees raise issues in respect to government action or in action and as a result the public meeting becomes an opportunity to vent frustration and less time is devoted to genuine collaboration and feedback.

Out of those that mentioned public meetings, two interviewees remarked on the upsides of public meetings. Both expressed the benefit of having an opportunity to use interactive tools and visualisations, such as hydrological models or storm modelling or potential green infrastructure to demonstrate to citizens what a project would look like or what the effects of certain measures might be.

Some mentioned that public meetings tend to be a main method because it is a mandated process for construction projects and/or it's a baseline requirement for government projects. However, as one interviewee mentioned "if that's all you do, you're really not doing the community a justice with your processes".

Several interviewees from the engineering perspective noted that most part civic participation efforts were managed by an external agency such as a public involvement firm, as public consultation is their expertise. Two interviewees in particular stated that they face an ethical question of whether it is worthwhile for the citizens to engage in the planning processes, particularly if professionals tasked with engagement efforts know beforehand that they are going to be constrained by the bureaucracy and be ineffectual at actual taking action on citizens ideas or request.

One observation made was of two community meetings as part of LA SAFE's<sup>3</sup> attempt to engage citizens and get them to voice their ideas about how they would like to see their communities develop of the next 50 years while considering the potential land loss due to climate change and rising sea level. At these meetings participants were asked to think about issues like transportation, cultural heritage, natural heritage, green spaces and necessary public services.

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<sup>3</sup> LA SAFE is Louisiana's Strategic Adaptations for Future Environments. It was formed as a partnership between the Louisiana Office of Community Development and the Foundation for Louisiana to address community resilience in the face of coastal change due to climate change.

The engagement process observed was one in which the presenter did a very short introduction about the aim of the community meeting as part of the bigger picture of multiple parish wide meetings. Following a quick introduction the attendees were asked, at the individual tables, to go through the main topic areas and using a map of their particular community with data about land loss and demographics to consider what they would want to protect, restore and maintain. Each table had a trained facilitator from the community. The engagement varied from table to table, some were more organised while others went off topic, others were dominated by an outspoken citizen and others participants were unable to state their opinion. In other tables the majority were researchers taking notes or those working for the Office of Community Development (organisers of these engagement sessions).

Many of the previously mentioned modes of civic participation rely heavily on “tapping into existing” neighborhood associations, organisations, health clinics, community groups, church groups and schools. Engaging citizens through already recognised institutions in their communities was one frequently observed and mentioned method for generating interest and educating citizens where they are at; other examples of this was going door to door, having a presence in public spaces and doing demonstrations in public spaces used by citizens (e.g. libraries and parks). This method of “tapping into existing” organisations and spaces is a way to involve younger as well as older generations and to streamline the participation process by making use of these trusted relationships “rather than we just go out and create our own”.

This effort to “partner with the right community organizations in the neighborhood that have the connection with the demographic of that neighborhood” was emphasised throughout all interviews. For emergency preparedness trainings they will go into communities in anticipation of an event and “train whomever is in the community through various means: city council, university, large employers, any groups and whatever community organisation”. Furthermore engaging with schools was an mentioned by several interviewees and featured in the city’s Resilience Strategy. One non profit organisation is doing this by providing professional development to a small cohort of teachers at a charter school while another interview mentioned working with science educators to adapt science curriculum so that it includes learning about New orleans water issues, related to water quality and water quantity and how to manage this.

Interviewees stated that the aim of demonstrations was to first engage the public where there are but also to use a more hands on approach to educating the

public as opposed to verbally providing the information or giving it in a brochure format by using a more interactive demonstration.

Neighborhood associations are in themselves a form of self organising of citizens to increase civic participation. As mentioned by interviewees and observed is that they have varying degrees of organisation and power over getting their needs meet.

There are several modes that were mentioned and observed but with a much lower frequency; mentioned by six or less interviewees, some with only one mention. These modes include; providing incentives for engagement (e.g. food, activities, matching contributions, financial compensation), engaging citizens on related issues (e.g. climate change, subsidence leading to poor roadways, public transportation), volunteering, surveying, word of mouth (e.g. neighbour to neighbour or church group to church group), hotlines, newsletters, participatory action research, engaging stakeholder on outsourcing of public involvement (e.g. hiring public involvement firm).

### 4.2.3. Factors that Influence Civic Participation in FRM strategies

The following section describes the findings depicted in the bar graph below. The influential factors are described in order of those with the most references from a majority of the sources (interviews and observations) to a summary of various factors that received a lower amount of referenced from less than half of the sources.



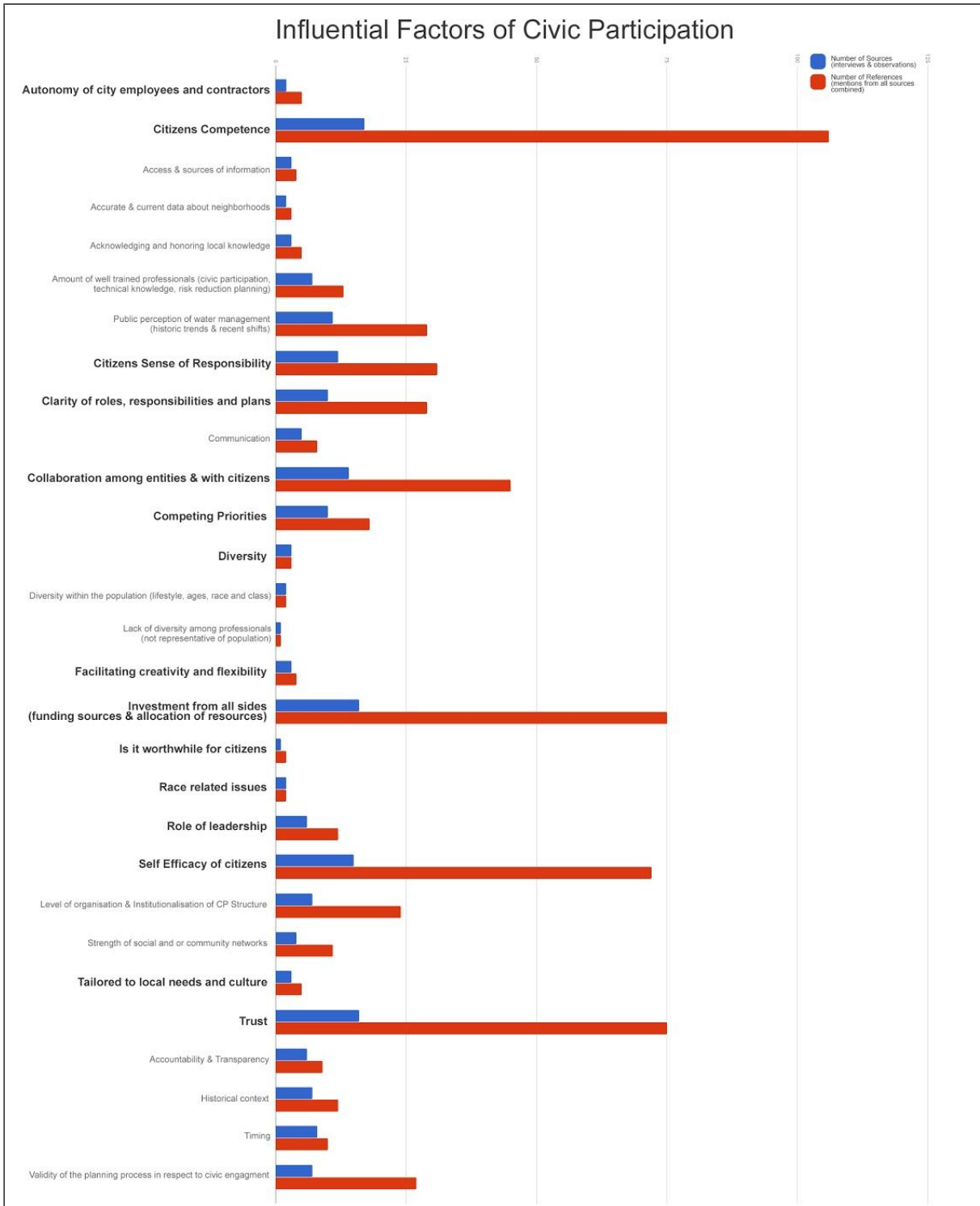


Figure 5: Coding structure and references for influential factors on civic participation in New Orleans. Bar graph illustrates in blue the number of sources (interviewees & observations) and in red the number of total mentions from all sources. The combined results of coding categories are in bold with subcategories listed individually in smaller non bold text.

The above bar graph depicts the coding scheme used to identify consensus among stakeholders and determine which factors are considered the most influential over civic participation. The list on the left, y axis, are the categories/codes that make up the coding structure. As mentioned in Section 3.1.3, the structure started with a preset list of codes/categories based on the findings of the literature review and expanded on while reviewing case study findings. The bar in blue represents the number of sources, either interviews or observations, in which the code listed on the left was found. The bar in red represents to amount of times all sources combined made reference to a code For example when interviewees mentioned that access to information was critical to improving overall competence this was coded as “access to information” under the main category or “citizen competence”. In terms of observations, if during an event the organiser stated that working in partnership with residents to share responsibility for the future managing of flood risk this was coded under the category of “sense of responsibility” and “collaboration”.

### **Competence**

All interviews were dominated by mentions of the need for improving knowledge, awareness and developing skills among the population. Some mentioned that in general the education system in New Orleans is poor, although improvements have been made since Hurricane Katrina. Predominantly the education system still struggles to improve education standards particularly in the poorer minority population schools. The mentions of citizen competence were often linked to need for improvement in the overall education system. Furthermore, Many interviewees also linked knowledge and skills in respect to flood risk management to a need to shift the public perception which has for some time been dominated by the “fear of water” being instilled in them because of disease from mosquitoes, getting water out of the city was a dominant rhetoric for a number of years however in recent years citizens are being nudge to think differently about this and to understand ways to “live with water” and this requires professionals educating citizens on how to do this in a way that doesn’t ignore those issues of safety but that works with them.

Interviewees commented that general knowledge of water related issues had definitely improved and some mentioned that it is often a “gateway” discussion because people acknowledge the importance of it since Hurricane Katrina. However other interviews mentioned that general knowledge and an ability to make connection between issues is still low. For example the relationship between high and low ground and the need for putting green infrastructure projects at high ground to hold water to avoid flooding at low ground. Also the issue of where storm water goes and the importance of maintaining catch basins (which also speaks to responsibility), and understanding the connection of flooding to subsidence.

Interviewees mentioned that a lot of the priorities for citizens is roadways and wanting the city to allocate funding and prioritise fixing this however not understanding the link between flooding and subsidence.

Shifting public perception to address the issues of *competence* and *responsibility* together was an area that many interviewees noted as needing improvement.

### **Lack of trust**

*“There is a major legacy of distrust in government that we deal with every day with everything and that is distrust in project delivery, that’s distrust that something will be done above board and that’s distrust that benefits that are described will actually be delivered. That is just something we deal with everyday. I know that exists in a lot of places but that really, really exists here”.*

Issues related to *trust* as mentioned above were commonly noted as an influential factor by all interviewees. This included mentions of factors linked directly to *trust* such as transparency and accountability, validity of the planning process, historical experiences and length of time between consultation and outcomes. Some interviewees emphasised *trust* as being the most significant barrier to civic participation for most citizens and particularly of black citizens. Trust issues were mentioned as having permeated every aspect of the relationship between government and citizens as well as being an issue among professionals. Issues of trust overlapped with other factors such as clarity of roles and responsibilities, and collaboration, for example interviewees noted that institutions have struggled to define and communicate to the public who is in charge of what and furthermore to demonstrate to the public that they are working in collaboration. Some directly linked this with the issue of trust while others did not.

In respect to accountability and transparency, interviewees mentioned that government departments as well as other institutions should have greater transparency in their operations and be available to the public to answer any and all questions they may have. Although having a more “transparent process” was mentioned across the board, several interviewees noted that use of the term “transparency” has a different connotation among the black community in government, commenting that a simplified explanation of this view is that “*white folks were at the trough for 100s of years and now that there are finally some black folks at the trough they want to highlight it [transparency]*”. Being mindful of this there was a switch to using the term “openness” instead of transparency.

Accountability, according to several interviewees, was also mentioned in respect to holding businesses, not only citizens and government departments, accountable. An example given was recent legislation which legally mandated large businesses to reduce impervious cover because as one interviewee stated *“the homeowner is never causing as much trouble as a large business”* in terms of having impervious cover that leads to increasing flooding in the city.

Throughout the interviews, many mentions were made concerning the length of time between engaging citizens and seeing outcomes; whether in the planning process, in receiving funding to help with recovery or mitigation efforts, or in implementing new ideas. The following statement was echoed in many other interviews, *“people have experienced numerous bright ideas come to their neighborhood and ask them a lot of questions and to be engaged but then nothing happens”* and *“that is where people’s histories lie with engagement”* and although there are efforts to overcome this barrier it remains a challenge. This is both an issue for trying to speed up certain processes as well as educating people regarding the time certain processes take, which may not always match the timeframe in which people live their lives, as summarised by several interviews:

*“So, there are a couple things, one is waiting for the money and two waiting for design, design takes a long time and getting people to think about design as an iterative process is very difficult and now knowing that ground breaking for many of these [projects] isn’t going to be for another year or two or three.”*

*“even more so now in an immediate gratification world, the engineering and politics world are on a different time frame, so it’s been 10 years since the Pontilly Project was a potential idea and we are just now finishing design and it’s not going to be constructed for another two years. Some people have started kindergarten and graduate high school in that timeframe”*

*“You’ve got probably within any community at some point in time there are 5 or 6 different routes you could take with no guarantee of being listened to at any of those routes and no guarantee that that final plan will result in anything real and the discourse is very much dominated by technical science professional community”.*

The last quote from an interviewee speaks not only to the length of the process with little to no outcome but also to the overlap and amount of routes to be taken which can lead to confusion, frustration and “consultation fatigue,” the concept mentioned in section two of this report. These issues result in the public

becoming increasingly skeptical of the governance actors motivation and the civic engagement and/or planning process in general.

Validity of the planning process and how citizens are expected to be involved, according to many interviewees, has an effect on trust and is ultimately a barrier to civic participation. The issue of having a valid and inclusive planning process was mentioned to be at the local as well as at state and national level. Several interviewees expressed skepticism about government intentions with respect to civic participation in the planning process, stating that government officials “lied” about community input and/or strategically planned and publicised meetings in a way that the public would struggle to find out about them or be able to attend and another stated that “*you wonder sometimes how much federal government actually expects you to get public comment or it’s the right thing to do so let’s put it in the rules and regulations*”.

An additional factor linked to trust and echoed by multiple interviewees is that early engagement is a balancing act because of concerns with the risk of leading to “consultation fatigue”, raising expectations that may not be deliverable, providing a blank slate where citizens don't know their options, or providing too much vision that doesn't allow for input. Some interviews were adamant that some form of co-production was necessary to build trust, increase civic engagement and improve the validity of the planning process, stating that genuine engagement can't happen if there is not “participation from the beginning, if you don't work together to define the question and the problem and instead you only pull people in around the solution” while other interviewees expressed more caution around early engagement, summarised by the statements such as “it's a catch 22” and “too much information early on will tend to make people shy away, whereas if you don't give them enough then, they don't have enough to respond to. It's a really delicate balance.”

### ***Funding and Investment***

*Funding and investment* as an influential factor was mentioned equally as often as *trust* throughout all interviews. Mentions of *funding and investment* covered a wide range: from the influence of certain funding sources, to the length of time to receive funding, to the level of investment of resources (e.g. time, money and in some cases tools), the allocation of those resources, and whether certain programming were to receive a permanent place in the government's budget. The general consensus among interviewees is that there is significant lack of investment

or allocation of resources going towards improving civic participation, in general and in relation to flood risk management.

According to most interviewees this lack of investment is in respect to all governance actors including citizens, NGOs, philanthropic foundations, and government departments. Most considered that the issue of civic participation in flood risk management requires a substantially larger amount than what is currently being invested, several stating that *“there is 9 billion dollars worth of need and 2 billion dollars worth of funding”* while others mentioned that it is not so much an issue of the lack of funding but the allocation of resources and budget.

In regards to funding sources, many interviewees made reference to an over reliance on funding from FEMA, which is still being distributed for the recovery effort following Hurricane Katrina. Current and previous government employees commented that money from FEMA was only meant to be a temporary source of funding while the city was rebuilding following Hurricane Katrina with the view that ultimately the financial burden for flood risk management efforts would be placed back onto local government through taxpayer funding and other means. In this respect, much of the civic engagement efforts have included getting citizens to understand the fact that these resilient city efforts, including flood risk management, are *“using federal dollars to make, you might say, a down payment on this work but long term it is going to be incumbent upon all of us and I’m including citizens and myself because I am citizen, that beyond these down payments to see how we can then pay for this work with our own tax dollars, with our own money”*.

Many interviewees made reference repeatedly to the link between citizen investment and encouraging a sense of responsibility, stating that it is costly to manage pump stations, catch basins and to implement green infrastructure on all publically owned land and so this requires investment from citizens in addition to seeking external funding sources. Investment from citizens was mentioned by interviewees as being possible in multiple ways; voting for a tax (now or in the future), making stormwater a utility like other utilities, implementing measures on your property that can help to reduce flooding, purchasing flood insurance or taking the time to clean out neighborhood catch basins (e.g. recent launch of the adopt a catch basin app), or volunteering time towards emergency preparedness. The concern that most interviewees raised is that these types of investments, particularly ones requiring financial means, may not be available to the most vulnerable communities, because they often have a substantially lower budget, other more pressing priorities and so what they can offer may be limited. This is another “catch 22” issue in that to improve resilience and reduce vulnerability requires a citizen

investment however citizens may not have the capacity to invest either financially or with their time.

Additionally, interviewees continually raised the question and concern as to whether citizens would be willing to contribute their resources, for example “how many people are willing to vote for this when they have to pay for it because so far they haven’t had to pay for it, in terms of specific money that you see on a tax bill or usage fee”. As an example, in one parish citizens have on two occasions voted down maintenance on their levee systems, interviewees speculated that this is because the *“residents were not convinced that the investments are necessary or that they can bare the cost or that the levee district entity is going to use the money wisely”*. Interviewees noted that this result may also be because of either a lack of information or misinformation, and/or a lack of trust that the government will use the money responsibly or that the government agencies are doing their part.

Additionally in respect to funding sources, interviewees also mentioned concerns about who decides what should be funded and many said that improving civic participation efforts were not on the agenda for funding sources whether philanthropic investors or government departments. In respect to NGOS, interviewees stated most are reliant on a small pool of funding and they are already trying to cover a lot of ground with limited time and resources, therefore efforts to make civic participation more expansive and inclusive of the most vulnerable communities are not prioritised because they requires additional funding, that is not within the budget of most NGOs.

An example of this was raised in respect to emergency preparedness, an interviewee noted that increasing the amount of evacuspot statues around town, these are permanent metal statues in 13 locations around the city used to inform citizens of where to go be registered for city assisted evacuation process (see image below), would help to better serve vulnerable communities. However increasing the number of statues cost money and increasing the number of volunteers and/or paid staff to be in charge of these locations has significant funding implication for funding that *“in theory could be cut at any time”* because the *funding* is not through an official government department.



### **Self Efficacy**

Encouraging *self efficacy* of citizens can happen in several ways: by entities supporting the development of knowledge and skills among the public to enable them to take action, by communities self organising, by institutions creating structured and legitimised forms of civic participation in decision making and implementation.

The following quote from an interviewee reiterates comments from multiple interviewees regarding the link between encouraging self efficacy through institutionalisation of structures for participation in an effort to rebuild trust between government and citizens.

*"I can not emphasise how strong the knee jerk reaction of distrust and negativity is in the community and that is another reason we have been pushing for so long for a permanent civic engagement structure, because it is demonstrable in other places that it has helped rebuild trust"*

This view of prioritising a formalised and institutionalised structure of civic participation was generally expressed, by interviewees, as a factor to improving civic participation. Although some neighborhood associations were very well organised and able to take action to get the needs of their community met, overall there is great deal of variability in neighborhood associations in which *"some are going to be hyper*



*organized and very engaged, others are going to be loose, others are going to have one issue, and others are going to have a pamphlet of issues, you see all kinds*” as well having many groups and associations claiming to be representative of the community but not working together. This inequality of neighborhood associations, according to interviewees, meant that some were able to exert more power and influence over decision making and implementation. Therefore, the idea behind establishing a more formalised and institutionalised structure could allow for more equal representation of neighborhoods/communities in decision making and implementation.

*“First off you create a structure that is permanent, predictable and empowering and secondly you show results,”* however in New Orleans this type of structure does not exist, according to interviews and observations, for city planning efforts despite the *“need to install a program for community engagement”*. Several interviewees were working towards getting a structure to be legitimised by the political administration, however they had differing views as to what the structure should look like and when attempts should be made to legitimise it. For example, one interviewee stated that their current work involved efforts to make it a permanent piece of the city’s budget, through legislation, under the current mayor and although they mentioned the structure was not perfect their view was that it would be better than having nothing in place (e.g. the current case) and at the very least it would be a step towards getting it institutionalised beyond the current leadership. However, others did not entirely share this perspective, one interviewee stating that the proposed civic engagement structure was not sufficient and a more robust one should be sought under a new mayoral administration; while another interviewee raised a question about whether a formalised/institutionalised structure for civic participation would actually work for New Orleans; although acknowledging that institutionalising structures for civic participation have been effective in other areas with similar demographics, this interviewee was cautious about suggesting that this could work with in New Orleans.

Several interviewees linked the strength of a neighborhood, in terms of access to resources and social network, as key to having a more organised and involved group of citizens in the planning process, whereas other communities that don’t have strong neighborhood associations required different methods of engagement, *“you have to go door to door and let people know ‘hey, we’re thinking about doing this, we have an upcoming meeting, we would like if you would attend,’ I think that is probably one of the bigger challenges”*. Interviewees also mentioned a series of plans that were devised as part of the recovery effort following Hurricane Katrina, however these plans were devised with limited public involvement and the result was *“public*

*backlash*” following the publication of these plans. For example, the first of these plans to receive public backlash was the Bring New Orleans Back Commission’s Green Dot which planned for reallocation of low lying neighborhoods into green infrastructure and parks space which citizens of these neighborhoods saw as them not wanting these neighborhoods back and resulted in *“a bunch of residents standing up for themselves, organizing themselves, they reacted to the green dot, they’re the model in New Orleans of a neighborhood fighting back and winning”* because ultimately the plan was rejected.

Recovery from Hurricane Katrina has affected the social network and in turn the self efficacy of certain communities, for instance several interviewees mentioned that the devastation and lack of preparedness in the Lower ninth ward led to a once thriving community with a strong social network to one that has a significantly lower population, substantially lower amount of businesses and public services operating there, a high number of vacant homes and lots 12 years after Hurricane Katrina. after, *“everything we needed was here. Everything. Because those flood waters came in and took everything, we do have family everywhere”*.

### **Collaboration**

References made in regards to *collaboration* were often in respect to it being a critical factors for rebuilding trust with communities; specifically between government departments and citizens. Interviewees expressed that collaboration was a significant part of their work and that by attempting to reduce the overlap between work that can lead to consultation fatigue, by showing solidarity and vision among institutions, and by having the public facing that was not linked entirely to government was a way to work on issues of trust. This perspective of collaboration as a mitigating factor for lack of trust is echoed in the following statement of one interviewee:

*“I will say that I think a really big reason that the government of the city needs in a [name omitted] nonprofit to do the communicating for them is because of the amount of distrust that occurred as a result of probably a lot of things but certainly and most obviously the Katrina response and corruption that went alongside that”*.

Collaboration was referenced fifth most frequently after competence, trust, investment, and self efficacy; receiving 45 references from 14 out of 17 sources. When asked about collaborative efforts, interviewees often noted that this was happening in multiple ways, across sectors and across areas of focus in terms of

flood risk management. For example, at one community wide event mentioned by several interviews as well as being an observed event there were non profits “*tabling*” to discuss emergency preparation in addition to government departments using interactive tools to discuss issues related to mosquito control and to demonstrate the potential for green infrastructure projects around the city. This particular event was showcasing projects from primary school children that designed ways to manage flooding in their schools using design techniques that were incorporated into their lessons. During several informal interviews with parents attending the event, they stated that they were learning things they didn’t know about water in their city. Parents as well as children were observed doing demonstrations that show how pumping station work during a significant rain event or plotting where settlements/homes could be placed when consider topography, water flows, and soil types.

Collaboration was expressed as a way to bring together different disciplines to support the efforts to build overall competence of citizens in terms of water management and flood risk; by attending one another’s events, collaborating on the development of projects and programming, combining work to apply jointly to funding opportunities, and learning from each others knowledge and skills. “*When you tag team and collaborate like that you can bring in more children and hopefully they can start to connect the dots*”. This method of collaboration was observed and mentioned throughout interviews; teachers were observed doing professional development and teaching lessons in respect to design and planning for flood risk, references were made regarding attempts by the Department of Public Works and the SWBNO towards improving their cohesion with one another and communicating it to the public.

While collaboration was mostly mentioned in terms of entities working together, several interviewees made reference to collaboration between entities and citizens e.g. through individuals or neighborhood associations. For example, one interviewee stated that they view the Urban Water Plan as “*having a really strong technical basis with powerful rendering tools for helping people see what parts of the city could look like but it’s meaningless unless it’s coming from people living in these neighborhoods*”, another stated that they are working on making neighborhood associations “*a partner*” and “*a collaborator*” on certain projects where their knowledge and connections can be help to expand the reach of civic engagement effort, and another interviewees stated that.

Along this same line of reasoning, several interviewees expressed a view that having a citizenry that is more involved in the development of plans can create opportunities for more dialogue between citizens and entities, which can further

develop confidence and skills that will enable them to communicate to professionals their visions and ideas for their neighborhood.

Several interviewees did however outline a potential concern with regards to the link between collaboration, funding and overlap of work among the entities in the city, this concern was summarised by one interviewee in the following statement:

*It is very grant driven and piecemeal and having worked with in the field a lot, it's hard to see somebody come in and say we can do this and we can do this better and start something new when people have been doing it but their funding doesn't allow them to communicate it to the public in the same way because the funding doesn't exist.*

A couple of interviewees referenced that government departments partnering with “progressive advocates” and nonprofit entities allows for more creativity and flexibility in developing and implementing ways of engaging citizens. The reason being are that these entities do not face the same restrictions, they may have access to creative funding opportunities, they can narrow their mission to focus on one aspect and/or they can potentially improve turnout of citizens because issues of trust are less present for these entities.

### **Additional factors mentioned with a lower frequency**

*Clarity of roles and responsibilities* was mentioned less frequently however it was connected to mentions of collaboration and the effect that a lack of communication about these roles and responsibilities has on the overall engagement process from the professionals perspective. An interviewee stated clearly, “one of the reasons that professionals in this field tend to dislike engagement is because when the public comes out they get angry and upset about things that are out of their control” and as an example of this is one such parish in which planners purposely reduced their engagement efforts because they “didn't want people to come and be angry with them about things that the state and the feds were doing. I disagree with that approach but I understand where it comes from”.

Furthermore, competing priorities was another influential factor. This factor was not listed as a key factor in the conceptual framework but noted by several interviewees as a barrier to civic engagement. A barrier in terms of both attendance at meetings and investment. Examples given were that people in lower socioeconomic backgrounds often had multiple jobs and dependents to care for and would therefore be unable to attend community meetings, regardless of their level of interest or if it affected their lives. Another example given was in respect to financial

means; if people have to prioritise cost of health needs for themselves or other dependents they might decided not to renew homeowner's insurance if it was not a requirement for their mortgage or flood insurance if they owned their homes outright and another example given was in respect to trainings for emergency preparedness, that if people were struggling to afford basics of living that it was unlike they could priorities getting the things needed to prepare and emergency kit to have in their home, car or at work.

Multiple interviewees noted that while New Orleans residences have a great deal of competing priorities, one that takes precedence in both the public and the political sphere is public safety. According to some interviewees, public safety refers to having more police presence or adding street lights to certain neighborhoods. When interviewees spoke of this it was usually followed by mentions of funding because public safety tends to be prioritised and often receives a substantial portion of the government budget. Moreover, interviewees also linked this to the idea that even though certain professionals have an idea as to what communities need or what is good for neighborhoods these do not always take into account what the residents will actually prioritise and this may be part of the hesitancy that people have about opening these conversation up to the public. They may not prioritise what professionals think should be prioritised.

This leads to another comment made by an interviewee stating that public employees often "avoid" going to the public for fear of public backlash because of a history of injustices.

#### 4.2.3 Inclusiveness

The majority of those interviewed stated that the turnout at most civic participation efforts were poor in general and in respect to being inclusive and representative of the wider community. Most commented that those mainly engaged are white citizens in a higher economic bracket, and there was very little representation of the black community which makes up a significant portion of the population and in particular in the most vulnerable areas. Additionally, the Vietnamese and Mexican populations that have increased in New Orleans and surrounding regions were also not in attendance at many of these modes, according to those interviewed.

Furthermore, several interviewees noted that most of those in attendance tended to be the same small group of people and often times they were working for the non profits or they were active citizens already knowledgable and/or interested in these issues. One interviewee mentioned that the Bayou Day event was the most

inclusive event they had attended since being in New Orleans and working in this field.

Responses to questions of inclusivity often provided anecdotal responses therefore a follow up question raised to interviewees was if there was a system in place for recording information and numbers regarding who is in attendance in the various modes. According to the majority of responses there was no documentation of attendance at these events or no known attempts to incorporate this in the practices.

#### 4.3. Conclusion

According to scholars, New Orleans has had a long history of “civic indifference”, however following Hurricane Katrina New Orleans experienced an “unprecedented rise in community engagement” (Liu et al., 2001, p. 9 & 177). With this new spirit of civic participation, communities and sectors appeared to be working together and demonstrating a capacity to build partnerships, address community wide issues, all of which are a “critical signs of resilience and adaptation” (Liu et al., 2001, p. 9 & 177).

Unfortunately, this motivation for civic participation during the recovery effort reduced over time following a series of public consultations that produced limited tangible results and multiple plans being put forward that came as a surprise to citizens and lead to “public backlash” (Liu et al., 2001, p. 164). Most of the neighborhoods affected by these plans were mainly made up of poor, working class, and black residents. As a result, the new spirit of civic participation that was borne from the experiences of Hurricane Katrina has since diminished and is echoed in much of the findings discussed throughout this section.

## 5. Discussion

This section presents an interpretation of the results, particularly concerning key aspects of the identified modes of civic participation and the factors with significant influence over participation of vulnerable communities. This section also provides a reflection on the methods used in this research, including a discussion regarding the limitations inherent in this study, areas for future research and the wider implications.

### 5.1. Reflection on results

#### 5.1.1. Modes of Civic Participation

The results of the case study are broadly consistent with the findings from the literature review. Firstly, the modes outlined in the conceptual framework were found to be the primary modes for civic participation in flood risk governance used in New Orleans. These include public meetings, community events, public awareness campaigns, volunteering and citizen's self organisation (Fung, 2015; Mees et al., 2017; Nye et al. 2011; Arnstein, 1969). However, there were additional modes highlighted by stakeholders as being part of participation efforts in New Orleans, that were not as dominant in the literature review. These include demonstrations in public spaces, engaging citizens where they are; meaning going to schools, church groups, health clinics and other spaces where citizens spend their time. The method of engaging citizens where they are is a reflection of an attempt by governance actors in New Orleans to broaden the scope of civic participation measures.

Although public meetings were identified within the literature (Fung 2015) and in the case study as being an ineffective mode of participation, they continue to be used frequently in the field of flood risk governance and in the case of New Orleans. Furthermore, there was consensus among stakeholders that public meetings as well as other community wide events related to flood risk tended to engage only a small subset of the population. This subset was primarily white citizens of a middle to high socioeconomic status and were less inclusive of marginalised and disadvantaged populations within the city. Moving away from traditional methods, such as standard/mandated public meetings and scaling up of potentially more inclusive modes along with an evaluation of these modes will require a more substantial level of investment and allocation of resources from governance actors to demonstrate their value of and commitment to improving civic participation among vulnerable

populations. This call for a greater investment in and valuing of civic participation is applicable for all regions dealing with flooding.

The use of non traditional modes is a reflection that stakeholders within New Orleans recognise the limitations of using traditional modes of participation and are expanding the types of modes they use. These include providing more trainings, workshops, educating children in schools and engaging citizens through pre-existing community groups and/or neighborhood associations. While stakeholders are working towards implementing more inclusive modes, their use remains limited and not fully inclusive of those more vulnerable communities. This is most likely due to the level and requirements of the funding available for staffing and organizing a more intense level of involvement. Interviewees identified civic participation as a low priority for funders, which in turn lessens the capacity to scale up those modes that have the potential to be more inclusive.

Several stakeholders in New Orleans expressed genuine uncertainty as to how to improve civic participation efforts to be more representative of the wider population. This uncertainty may be related to the amount of barriers in place and that many barriers have a lengthy historical context to the extent that they are deeply ingrained in how the city functions, beyond flood risk management.

#### 5.1.2. Influential Factors for Civic Participation

Both the conceptual framework and the case study highlighted several critical influential factors as contributing to the inclusiveness of modes of civic participation, in general and specifically in flood risk governance:

- ❑ Citizen competence (e.g. risk awareness, knowledge and skills)
- ❑ Trust between citizens and institutions
- ❑ Investment of time and resources from all governance actors, including citizens
- ❑ Self efficacy of citizens
- ❑ Sense of responsibility of citizens
- ❑ Collaboration between entities and with citizens

This list outlines the factors that receive the most attention across the literature and within the case study. However as shown in the results (Section 4) there are additional factors that influence the process of civic participation.



The current state of civic participation in New Orleans is that all factors listed above are perceived as being barriers to civic participation in general and especially for vulnerable communities. The vulnerable communities do not have the resources or willingness to engage in the process unaided.

The issue of trust dominated much of the interviewees responses. It was highlighted during every interview as being a pervasive issue that impedes many aspects of the city's functioning, some going as far as saying that without addressing it most attempts to engage the public would likely fail. Based on the consensus among interviewed stakeholders and in much of the literature reviewed, establishing trust should be a key focal point for flood risk governance. Unlike other factors, as identified in the literature, trust between citizens and institutions is often considered a barrier when it is both lacking and when it is abundant.

A critical first step would be to invest in understanding the underlying reasons behind the lack of trust, possibly through further research. Some stakeholders speculated as to why trust is an issue in New Orleans, for example mentioning the racial history of the region, corruption within established institutions and previous experience with inadequate flood risk governance. While these speculations may be accurate, gaining a further understanding of this issue through further research which includes more of a citizens perspective. This issue with trust is applicable not only for New Orleans but in other regions dealing with similar issues related to lack of trust.

## 5.2 Reflection on Methods

In order to answer the main research question the study was divided into several parts. The first part of this study reviewed the literature to identify various modes of civic participation and the influential factors, ultimately leading to the formulation of a conceptual framework. The use of a conceptual framework provided a structured approach to examining the literature, developing the interview guidelines and a viewpoint through which to review the case.

### 5.2.1. Interviews

All interviewees were open to discussing the opportunities, issues and challenges they faced in their work. The interviews proved to be an invaluable source of information and provided a variety of perspectives. Given the lack of data on civic participation activities available and limited timeframe for this thesis, data gathered

from in-depth interviews was an effective collection method for an extensive body of information. Identifying where there is consensus among stakeholders is a critical first step towards recognising what factors to prioritise. Furthermore, allocation of resources is driven by what is prioritised and valued by stakeholders.

Although various perspectives of professionals were gathered through interviews, not all expert stakeholders were available. Furthermore, the perspectives of the most vulnerable citizens is missing from the overall analysis. Attempts were made to interview several neighborhood association leaders as representatives of certain communities however the requests did not receive a response and therefore their perspectives are absent from this study.

Additionally, given the timeframe as a single researcher and the in-depth qualitative approach being used, less time was available to complete a larger community wide survey. Placing emphasis on a select few stakeholders limits the generalisability of this research.

### 5.2.2 Observations

The use of participant observations added to the overall analysis and provided a real life context for the points raised within the interviews, particularly in respect to use of certain modes and their inclusivity. Where observations proved less helpful was in identifying the influential factors, as only informal and shorter interviews could be held with attendees during the observations.

Observations informed the interviews in several ways. When interviews were held prior to attending an event it helped to providing context and underlying knowledge for the observations. In some cases, interviewees appeared more comfortable and open as they were aware of my presence at previous events. Furthermore several interviews informed me of certain events that I would otherwise not have known about, for example small community meetings and teacher's presentations.

A possible disadvantage to using the participant observation method was that it may have influenced interviewees responses to questions. They were often aware of my attendance at an event or that I would possibly be at a future event that they were referring to. This may have prompted interviewees to be more open or it may have made them more guarded in respect to certain questions. It is difficult to determine in which way this may have influenced the interview process. Despite this downside, participant observations did help to provide a more detailed and nuanced understanding of the modes of civic participation and their level of inclusiveness.

Additionally extending observations to cover the full hurricane season, June to November, could provide valuable insights into how governance actors response to increasing amount of rain events and risk of flooding during those months.

#### 5.2.4. Statistics

The interviewees kept no statistics on attendance at civic participation events, for example numbers and demographic information of attendees as an evaluation of inclusiveness and levels of participation. The lack of collection of statistics by stakeholders limits understanding of the inclusivity of certain modes of civic participation. The statistical data would have been useful alongside observations and stakeholders perspectives to either support or challenge the findings of this study.

#### 5.2.5. Data Analysis Method

The coding process was a useful method for identifying consensus and dissent among stakeholders with respect to research questions. Given the qualitative nature of this study the results from the coding process provide a subjective interpretation of stakeholder's responses, potentially affecting the reliability of the coding scheme. Several cycles of coding were completed and detailed notes were written during the coding process to outline what was found during each coding cycle and how it related to the literature review findings. The process of multiple coding cycles and detailed note writing allowed for a thorough and transparent coding process. Future researchers using this method would benefit from having multiple researchers carry out coding separately and then to compare coding as a means to test the reliability of the coding process (Campbell et al., 2013), this however was not within the scope of this research. "*No method is perfect*" when addressing reliability of the coding process for qualitative data, however being explicit about the approach is important (Campbell et al., 2013, p. 320).

### 5.3. Implications

Flooding is an environmental risk that affects millions of people worldwide. Due to increasing effects of climate change, disproportionately experienced by socially and economically vulnerable regions and communities, flood risk governance actors are attempting to develop strategies that aim to reduce vulnerabilities and build societal resilience to flooding. As outlined in the literature review, efforts to include citizens from these communities in the development and

implementation of these strategies can be an effective means to break down certain barriers and improve societal resilience. However, as identified in the case study certain factors, if not addressed, will continue to impede the development of more inclusive civic participation processes. In regions worldwide and communities within the USA that face similar issues to New Orleans of having a public that is generally under informed, unprepared and distrustful of institutions they are likely to see a repeat of many of the issues that happened during Hurricane Katrina.

## 5.4. Conclusion

In this discussion section I have argued how certain influential factors are considered as barriers in the case study and how the modes identified in the literature and the case study are used. Following this I have provided a critical assessment of the use of the research methods, discussed the general limitations of the study and presented wider implications of this study.

## 6. Conclusion

This research set out to explore the role of civic participation in building societal resilience and reducing vulnerabilities of marginalised and disadvantaged citizens. Through the combination of a literature review and a case study I identified and examined various modes of civic participation and the factors that influence their inclusiveness thus answering the main research question: *What factors determine civic participation of vulnerable communities in flood risk governance, including FRM strategies?*

The literature review stage was critical for identifying the most commonly used modes of civic participation and those factors which have the most influence over whether they are successful at including vulnerable communities in managing environmental risks, namely flooding. The findings from the literature review guided my approach to examining civic participation in action in a particular case. My case study included participant observations at 13 events and 22 interviews with stakeholders from various government departments, civil society organisations, NGO directors, research institutions and private businesses such as architecture and engineering firms. All of these participants work in either flood risk management, urban planning and/or civic participation activities.

While my case study of New Orleans can be viewed as an extreme example of the negative effects of insecure flood risk governance, the influential factors identified through this study are likely to be found at different scales in coastal

communities worldwide. In this respect, the findings of this study can be applicable for policy makers dealing with flood risk governance more broadly. I argue that in order for governance actors to work towards effective civic participation methods they must take into consideration the economic and social barriers to participation and incorporate ways to reduce these barriers. This often means a higher level of investment because the most vulnerable populations have the greatest barriers. Engaging these communities will require creative thinking and trying out alternative methods. This means civic participation efforts may involve more 'boots on the ground'. In other words, traditional civic participation modes like public meetings may not be enough to engage less represented and more vulnerable communities. It is important that these trial programs are evaluated to reflect on their effect on civic participation for the more vulnerable populations.

From both the literature review and the case study analysis, I recommend the following list of conditions that governance actors should prioritise when attempting to improve civic participation of vulnerable communities in flood risk governance.

- Improve citizen competence (knowledge, skills, & risk awareness).
- Rebuild or establish trust between institutions and citizens.
- Demonstrate a commitment and value investment in civic participation in flood risk governance.
- Create and legitimise a formal structure for participation to support self efficacy of citizens.
- Promote ownership of process by citizens which increases "buy in" and thus a sense of responsibility.
- Ensure clarity of roles and cohesion among entities to demonstrate a shared responsibility and clearly defined boundaries.

Furthermore, when designing techniques and approaches for engaging communities, governance actors are recommended to keep in mind additional factors that will likely influence a community's level of participation. These include; competing priorities as mentioned in Section 4, allowing for creativity and flexibility, experimenting with multiple approaches while being mindful of "consultation fatigue," and meeting citizens where they are. The use of multiple techniques and approaches is critical as each community may require something different.

Coming from a social science perspective, my thesis responds to a growing need for a cross disciplinary approach in which the relationship between environmental risk management and social issues are considered together. Without a combined approach to issues of environmental risks, policy makers and

researchers alike will continue to struggle to understand why the most vulnerable communities are not participating and furthermore they will continue to struggle in devising a way forward. Furthermore, future research could complement and build on this thesis in two ways. Firstly by expanding the study to include interviews and surveys of vulnerable community residents. Secondly, by separately examining several of the main influential factors to better understand them and how they can be addressed. For example, examining the link between trust and participation can be a study in itself.

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## APPENDIX A: Interview Consent Form

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- I understand that this interview will be recorded, transcribed and analysed for use in an academic research project examining civic participation in flood risk governance.
- I understand that my personal details **will not** be passed on to any other parties.
- I understand that all information obtained during this interview will be coded during analysis, providing anonymity for all participants. You will not be personally associated with any responses given during this interview.
- I understand that I am entitled to a copy of the transcript of this interview.

Name of Participant: \_\_\_\_\_

Signature of Participant: \_\_\_\_\_

Date: \_\_\_\_\_

## APPENDIX B: Interview Guidelines

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Date:	
Interviewee:	
Organisation:	
Interviewees position/title:	

This research study aims to examine civic participation in flood risk management (to gain insight into how vulnerable communities can be included in the decision-making and implementation processes of flood risk governance. Valuable and transferable lessons can be taken from New Orleans. Therefore, the purpose of this interview is to ascertain views from stakeholders with knowledge of the subject and the region.

If agreed, the interview will be recorded for the sole purpose of analysis. The information provided within the interview will be shared with the thesis supervisor and incorporated into the overall analysis, however interview transcriptions will not be included in the finalised report.

The following questions are a guideline, they can be adapted and/or omitted if not applicable or repetitive. Please inform the interviewer if clarification of questions and/or terms is needed prior to answering.

### **Introduction: Overview of experience and perspective**

1. How does your work experience, past and present, relate to flood risk management? and civic participation?
2. Please describe your role with the organisation?
  - 2.1 How long have you worked with the organisation? (*in the same or different capacity*)
  - 2.2 What are your current tasks and responsibilities?

2.3 Considering five key areas of flood risk management (prevention, defence, mitigation, preparation and recovery) where does your work experience most relate? How?

3. What is your view on involving vulnerable communities in the decision making and implementation processes of managing flood risk?

**Modes of civic participation (specific to your organisation):**

4. What activities does your organisation do, or take part in, to involve citizens in flood risk management?

5. Where and when do these activities take place? What are the reasons for selecting certain times and locations?

6. Who is responsible for organising these activities?

7. Roughly how many citizens/residents participate in these activities? Does this number change over time?

8. What is the demographic profile of participants? Does this reflect the local population demographics?

9. Are certain groups in the community more involved with your work? why?

10. Are certain groups in the community less involved with your work? why?

**Barriers to civic participation**

11. What do you see as main barriers to civic participation in flood risk management?

12. What efforts are being made to mitigate these? (*by your organisation or others you work with*)

**Local policy strategies**

13. What city wide strategies are you aware of that aim to address civic participation in flooding risk management?

14. What are the strengths of the strategy or strategies?

15. What are the weaknesses?

16. What, in your view, are the key challenges to civic participation of vulnerable communities for New Orleans?

17. What, in your view, is necessary for vulnerable citizens to be included in the development and implementation of flood risk management policies?

### **Factors that influence civic participation in flood risk management**

18. The following is a list of factors that influence civic participation, please rank them according to their general importance, regional importance, and where improvement is needed (specifically in New Orleans). 1 being highest priority, 12 being lowest priority; 1 being most in need of improvement, 12 least in need of improvement. Some can have the same ranking.

- Regional fit (adapted to local needs)
- Investment (from citizens, business, & govt)
- Citizen competence (knowledge, skills, awareness)
- Trust
- Early involvement of citizens
- Collaboration (between governance actors, including citizens)
- Access to resources (instruments to achieve outcomes)
- Citizens' sense of responsibility (in respect to flood risk governance)
- Shared narrative/cultural identity (in respect to relationship with water)
- Self-efficacy (belief in capacity to achieve results, influence change)
- Leadership
- Clarity of roles and responsibility

19. Do you have additional comments regarding the factors and conditions?

### **Conclusion**

20. Are there additional aspects which you would like to discuss that have not been covered?



21. If clarification and/or further information is needed at a later stage would you be open to being contacted by phone or email?

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APPENDIX C: Questionnaire: Civic Participation in Flood Risk Governance (flood risk governance)

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The following is a list of factors that influence civic participation in flood risk governance. Please rank them according to your view of their general importance and where improvement is needed in respect to New Orleans area. If you feel unable to provide a response, please leave it blank and briefly state why.

- Mark on a scale of **1 to 5**.
- Importance column: 1 = highest, 5 = lowest
- Improvement column: 1 = most improvement needed, 5 = least improvement needed

FACTORS	IMPORTANCE	IMPROVEMENT
Tailored to local culture and needs		
Investment of time & resources (from government, NGOs, businesses and citizens)		
Citizen competence (knowledge, skills and awareness of risk associated with flooding)		
Sustained citizen competence (as above) during non-crisis times		
Trust between citizens and institutions		
Citizen involvement in early stages of planning		
Collaboration between govt departments, organisations, businesses and citizens		
Citizens' sense of responsibility		
Self-efficacy of citizens (belief in capacity to achieve results, influence change)		
Leadership		
Clarity of roles, responsibility and accountability for the various aspects of flood risk management		

Defined structures, opportunities and mechanisms for participation		
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Comments:

## APPENDIX D: Coding structure and number of references

Codes/Categories	Sources (Interviews & Observations)	References
1. Experience related to FRM and Civic Participation		
Civic participation	3	7
Defense	4	6
Mitigation	12	24
Preparedness	5	9
Prevention	2	3
Recovery	11	15
2. Modes for civic participation		
Community events and activities	12	32
Trainings and workshops	8	18
Engaging citizens on related issues	7	13
Engaging citizens where they are (school, streets, houses, community centers)	14	67
Engaging citizens through existing community groups or organisations	10	23
Engaging younger generations	7	17
Hotlines	1	1
ICTs	9	15
Media and news outlets - Radio, TV, Internet, or Print	5	6

Newsletters (information by post)	2	3
Participatory action research	1	1
Print and Digital Resources (Publications, Booklets, Brochures)	4	6
Public and community meetings	10	32
Providing incentives	5	9
Surveying	1	1
Volunteering	4	5
Word of mouth	1	2
Outsourcing of public involvement efforts	2	3
<b>3. Influential Factors</b>		
Autonomy of city employees and contractors	2	5
Citizens Competence	17	106
Access & sources of information	3	4
Accurate & current data about neighborhoods	2	3
Acknowledging and honoring local knowledge	3	5
Amount of well trained professionals (civic participation, technical knowledge, risk reduction planning)	7	13
Public perception of water management (historic trends & recent shifts)	11	29
Citizens Sense of Responsibility	12	31
Clarity of roles, responsibilities and plans	10	29
Communication	5	8
Collaboration among entities & with citizens	14	45

Competing Priorities	10	18
Diversity	3	3
Diversity within the population (lifestyle, ages, race and class)	2	2
Lack of diversity among professionals (not representative of population)	1	1
Facilitating creativity and flexibility	3	4
Investment from all side (funding sources & allocation of resources)	16	75
Is it worthwhile for citizens	1	2
Race related issues	2	2
Role of leadership	6	12
Self Efficacy of citizens	15	72
Level of organisation and Institutionalisation of CP Structure	7	24
Strength of social and or community networks	4	11
Tailored to local needs and culture	3	5
Trust	16	75
Accountability & Transparency	6	9
Historical context	7	12
Timing	8	10
Validity of the planning process in respect to civic engagement	7	27
4. Inclusiveness of modes		
Communities that are involved and represented at various modes	14	39

How and when modes take place	7	14
Representative of target community	10	28
5. Policy Initiatives (Federal, State, & City)	2	2
strengths	3	5
Weaknesses	3	7
6. Visions for future	10	20
Discrepancies among professionals in how to manage flooding	1	6
Ethical questions	1	6
Evaluation plans for current and future engagement process	6	10
Link between quality of life improvements, gentrification & displacement	5	8
Non profit organisations as a broker between citizens and government	1	2
Unresolved Trauma	2	7