



INSTITUTE FOR HOMELAND SECURITY



**Sam Houston
State University**

Protecting Infrastructure through Public Engagement

**Institute for Homeland Security
Sam Houston State University**

Oluponmile Olonilua, PhD, CFM

October 28, 2022

Protecting Critical Infrastructure through Public Engagement

Technical paper

By Oluponmile Olonilua, PhD, CFM

October 28, 2022

Abstract

This paper explores how citizen engagement can improve the protection of critical infrastructure in Texas. When citizens are involved in the planning process, they are more likely to support the implementation of actions developed from this process. The paper discusses public participation, its importance, and how it has been used in critical infrastructure. An additional goal of the project is to enhance public participation to promote buy in, to protect and preserve new and existing infrastructure in the Houston-Galveston area. Using both telephone and email interviews, the study asked providers how they have traditionally involved the public in their decision-making processes. Local citizens, specifically, undergraduate students were asked if they know what critical infrastructure is. The study assumes that local citizens do not know what critical infrastructure is and providers do not typically involve citizens unless there is need to. Our findings confirm that approximately 50% of the citizens do not know what critical infrastructure is and approximately 90% of providers do not involve the public in their decision-making process. Providers, however, do provide avenue for citizens to contact them even if they do not actively seek their involvement. The results of this paper are limited and the study, therefore, recommends additional study and training needed for providers, agencies, and local citizens to work together to better protect the critical infrastructure.

Introduction

The public is a very large and diverse group and an effective risk communication must take into consideration the interests, concerns, and priorities of the various groups. When stakeholders are involved in issues that affect them, they are more likely to support the implementation of policies and projects (Olonilua and Ibitayo 2011, Olonilua 2016). The dissemination of the risk information to the public enhances the citizens' understanding of the dangers of the hazard event and may facilitate compliance with warning. The dissemination of public information including protective strategies may also enhance the capability of the citizens to work with providers and agencies to further protect the nation's critical infrastructure.

Effective risk communication requires that agencies identify public perception and acknowledge the diversity of the public. Government perceives risk differently than the public and therefore involving the public in protecting critical infrastructure could bridge this difference in risk perception. Effective risk communication should acknowledge the concerns of the public and expressing empathy for issues raised by the public. For this to work however, government must have established a meaningful relationship with members of the public by involving them in for example, advisory panels, committees, focus groups, government/community projects, etc. This promotes risk sharing and vulnerability assessment. This project therefore proposes to build that partnership by identifying ways and methods the public can be involved in protection critical infrastructure in the State of Texas, specifically in the Houston-Galveston area.

Critical Infrastructure

The Department of Homeland Security, Cybersecurity and Infrastructure Security Agency (CISA) describes critical infrastructure as “the physical and cyber systems and assets that are so vital to the United States that their incapacity or destruction would have a debilitating impact on our physical or economic security or public health or safety. The Nation's critical infrastructure provides the essential services that underpin American society” (CISA.gov). Critical infrastructure is owned and operated mostly by the private sector. CISA recognizes the importance of public-private partner “that foster integrated, collaborative engagement and interaction” to protect the critical infrastructure and build the nation’s resilience. The assumption is that the collaboration will further promote information sharing and risk mitigation.

CISA is the lead agency that coordinates the national effort and partnerships to ensure the safety and protection of the nation’s critical infrastructure. A review of CISA’s public partnership recommendation provides opportunities for providers, owners, associations, and agencies. While these recommendations do not specify local citizens, they do provide opportunities for several stakeholders to be involved. CISA has recommended the following to build and promote public-private partnerships.

- An advisory council, The Critical Infrastructure Partnership Advisory Council (CIPAC) to provide operational framework for the partnership structure. The council brings together providers (owners and operators), trade association members, and Government Coordinating Councils to collaborate in information sharing and protection activities.
- Sector Coordinating Councils (SCCs) are self-organized but they allow providers and associations to collaborate and interact on strategies, policies, activities, and issues. Government Coordinating Councils.
- Similar to SCCs, Government Coordinating Councils (GCCs) are representatives from various levels of government that work together.
- The Critical Infrastructure Cross-Sector Council allows the SCCC an opportunity to address cross-sector issues and interdependencies.
- The Federal Senior Leadership council (FSLC) comprises designated senior officials from sector-specific agencies, federal departments and other identified agencies involved on critical infrastructure.
- The State, Local, Tribal, and Territorial Government Coordinating Council (SLTTGCC) ensures that all levels of government are actively involved in national critical infrastructure security and resilience effort. The Council also provides information on initiatives, activities, and best practices.
- The Regional Consortium Coordinating Council (RC3) provides a framework that supports existing regional groups in their efforts to promote resilience activities in the public and private sectors.

Public Participation

A planning process to encourage democratic urban government, must act to include and not exclude citizens from participation in the process. Inclusion is not just allowing citizens to speak

but also to become informed about fundamental reasons for a proposal and be able to respond accordingly and allow minority plans from opposing groups to satisfy the alternative requirements of rational model of decision making. Individuals have a better sense of reasonableness and accountability to one another when they can express their interests and preferences publicly (Young 2000). public participation provides an opportunity for the public to be involved in decisions that directly affect them, a basic tenet of democratic governance.

Citizens can help the experts by contributing local contextual knowledge required to solving “pressing environmental problems” (Fischer 2000, pp. xii). Fischer admits that this is not an easy process but there is the need for everyone to be involved and does not dismiss the fact that science is still relevant in resolving environmental crisis rather he makes the case that in issues directly affecting peoples’ lives, these affected people should be allowed to have a say in their destiny. Citizens, if given the chance, are more knowledgeable in issues directly affecting them especially local issues. Fischer through the discussion of environmental risk presents the current practice of scientists and technology that excludes citizens. He presents how the environmental movements have reacted to the decisions made by technocrats and then presented an exploration of alternatives that includes citizens with the expert as the facilitator.

Though addressing citizen participation in environmental decision making, Fischer (2000) poses the question of whether there is “a hopeless dilemma” in the conflict between citizens and experts and explores the possibility of alternative or “new forums that may circumvent ... a standoff between citizens and experts” (Fischer 2000, pp. x – xi). His thesis is that citizens can help the experts by contributing local contextual knowledge required to solving “pressing environmental problems” (Fischer 2000, pp. xii). Fischer looks at new approaches that would integrate citizens and experts. His post positivism approach does not underscore the relevance of science to environmental policymaking, rather he posits that laypersons be involved from the onset of any research affecting them since they possess the local contextual knowledge. Fischer admits that this is not an easy process but there is the need for everyone to be involved and does not dismiss the fact that science is still relevant in resolving environmental crisis rather he makes the case that in issues directly affecting peoples’ lives, these affected people should be allowed to have a say in their destiny. Citizens, if given the chance, are more knowledgeable in issues directly affecting them especially local issues. Fischer through the discussion of environmental risk presents the current practice of scientists and technology that excludes citizens. He presents how the environmental movements have reacted to the decisions made by technocrats and then presented an exploration of alternatives that includes citizens with the expert as the facilitator.

Public participation provides opportunity to a more equitable, just, inclusive, and resilient communities. Public participation can help decision-makers to garner support to protect critical infrastructure, build trust, and promote public interest in the protection of critical infrastructure. Consequently, knowledge gained and learned can help community safety and provide voice to underserved and minority communities. The ladder of public participation by Sherry Arnstein (1969) discusses the varied methods of public participation and how those do not always lead to citizens’ control of decisions. She would discuss the difference between empty ritual of participation and meaningful participation that exemplifies real power and influence over

outcomes. Hendricks, Meyer, and Wilson (2022), in figure 1, provide suggestions on how to link infrastructure and hazard mitigation planning with public participation.



Methodology

Participants were randomly selected from the list of ASCE. ASCE provides grade reports for Texas and this project uses the 2012 report to select providers. ASCE also provides feedback on how they are involving the public. From the list obtained in the report, providers were selected using each sector as a stratum. This is to ensure that the project covers multiple sectors and providers. The citizens in this project are undergraduate students who willingly participated by answering questions to gauge their level of knowledge and involvement in critical infrastructure.

Limitation of Study

To the extent that the results of the generalizability of this research, the findings of this project are exploratory only. There is need to interview more providers, agencies, associations, and local citizens.

Results

The researcher contacted the National body of the Association of Civil Engineers to find out what they as the national body does to involve the public. Specifically, ASCE was asked on how the public can be involved the public in protecting critical infrastructure. They were asked if their team consider public engagement when they carry out their report and research. If yes, what are your findings? If not, would they consider how the public is involved? ASCE does produce YouTube documentary videos showcasing the human side of infrastructure. The first video is on Pittsburg and it stresses the importance of public information and education. The second video is on bridges and its impact on agriculture and survival of citizens in Mississippi. ASCE run these on social media and during presentations with lawmakers, with members emphasizing personal stories during Congressional Hill visits and other lobbying and advocacy activities. The two documentaries are available through the following link:

[American Infrastructure: Below Our Feet](#)

[American Infrastructure: The Long Haul](#)

The Texas **Railroad Commission** of Texas met with the research via zoom. The specific questions asked were: What should we be telling the public? How should we be telling them? Have you had public engagement before?

The Railroad Commission have a different audience. They serve the direct entities they regulate. They involve the public as part of the regulation through public safety and protection of critical infrastructure in Texas. The Commission has different rules and involve the public through rulemaking, staff drafts, and input from public comments. In the daily course of business operations, the Commission interacts with the public via emails, calls, complaints, concerns, etc on facilities and services. As a Commission, there are three elected commissioners and they have open meetings at the regional level and the various areas where there is need, an issue, or a concern. The Commission also sends out press releases, social media, announcements of agency activities, weekly/daily outreach mechanisms. The agency has a lot of data over decades, historic data,

available to the public on the website without Freedom of Information Act (FOIA). They sometimes ask for public input on rule proposals, customer service surveys, and feedback on performance. All information is accessible via the website; rrc.texas.gov.

The telephone interview with **Critical Infrastructure solutions** revealed that not all providers deal with the public. They only deal with manufactures and their manufacturers do involve the public. Specific manufactures with CIS were not contacted further for this project. on the phone too. They don't deal with the public and they don't plan on involving the public. They did mention that their manufacturers do, and I have added those to the list of providers I will be contacting in the next few weeks.

There was not enough time to keep following up with ERCOT on the telephone and not enough information on the website on who and how to contact. Even though, the researcher was directed to Public Utility Commission, there was no success in reaching out to them. The website does not provide information on public engagement.

Citizen/Student Interview

This research includes checking the level of knowledge of local citizens on issue of critical infrastructure. A total of 24 undergraduate students were polled using Blackboard Ultra Collaborate polling system. Half of the students are taking introduction to emergency management course while the other half are policy process students. Participants were asked what critical infrastructure is, 60% of the participants said yes and provided examples. 10% classified critical buildings, such as the White House, as a critical infrastructure. Participants were asked if they have ever participated in any critical infrastructure activity, 90% reported they have never. However, when asked if they have ever reported any kind of power outage, disruption, 50% reported they have participated in disruption reporting. 30% of participants have participated in organized events by critical infrastructure provider and 100% will definitely participate if invited and are aware.

Discussion

Findings show that most providers do not involve the public in decision making. Our interview show that the providers want to provide information to citizens but not involve the public in decision making. When This may mean that providers do not know or do not see the necessity in participating. Research shows the benefit of involvement. Yes, it could be cumbersome, but the benefit is more people are aware, take ownership, and protect the critical infrastructure. The study recommends additional research in this area and for all stakeholders to provide avenue and opportunities for public participation. Providers and citizens need to be educated on the importance and need of involvement in the protection of critical infrastructure.

References

American Society of Civil Engineers (ASCE), 2012 Report Card for Houston Area Infrastructure, , Texas Section, [CriticalInfrastructureasce houston report card full report rev.pdf](#), accessed multiple times, 2022

American Society of Civil Engineers (ASCE), [2021 Report Card for America's Infrastructure grades reveal widening investment gap | ASCE](#), accessed multiple times, 2022

Arnstein, SR. 1969. A ladder of citizen participation. *Journal of the American Institute of Planners*, 35(4): 216–224. DOI: <https://doi.org/10.1080/01944366908977225>.

Cybersecurity and Infrastructure Security Agency (CISA), [Homepage | CISA](#), accessed multiple times 2022

Fischer, Frank (2000) Citizens, Experts and the Environment: The Politics of Local Knowledge, Duke University Press

Hendricks, M.D., Meyer, M.A. and Wilson, S.M., 2022. Moving Up the Ladder in Rising Waters: Community Science in Infrastructure and Hazard Mitigation Planning as a Pathway to Community Control and Flood Disaster Resilience. *Citizen Science: Theory and Practice*, 7(1), p.18. DOI: <http://doi.org/10.5334/cstp.462>

Olonilua, Oluponmile (2016). “State Mandate Influences on FEMA-Approved Hazard-Mitigation Plans Under the Disaster Management Act of 2000”. *World Medical & Health Policy*, 8: 27–45.

Olonilua, Oluponmile & Ibitayo, Olurominiyi (2014) An In-depth Analysis of the Houston-Galveston Area Council Regional Hazard Mitigation Plan Under the Disaster Mitigation Act of 2000 (DMA2K), *Journal of Risks, Hazards, Crisis, and Public Policy*, Vol. 5, Issue 3, pages 316-341

Young, Iris M. (2000) Inclusion and Democracy, Oxford University Press