

Strengthening Hazard Mitigation in Under-Resourced Communities

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University of Oklahoma

Making Mitigation Work Webinar Series, 9 April 2024



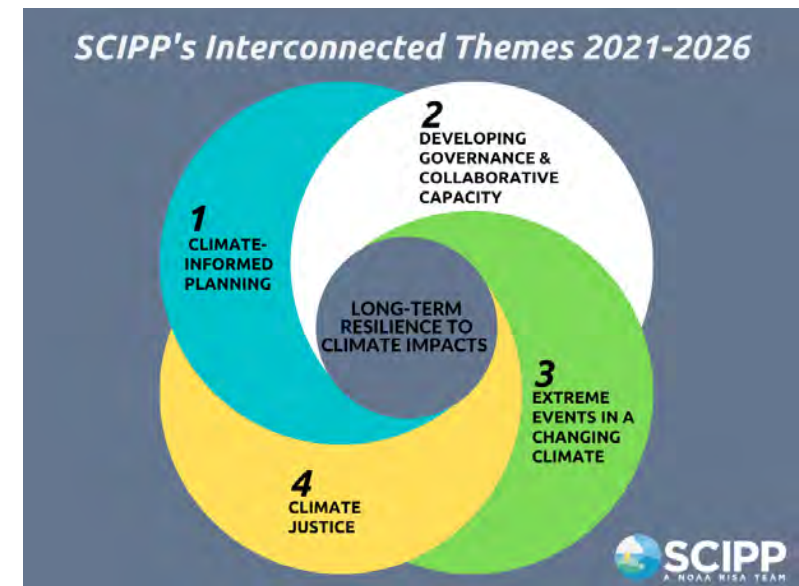
SCIPP
A NOAA CAP TEAM



About SCIPP

Southern Climate Impacts Planning Program

- Established in 2008.
- One of several National Oceanic and Atmospheric Administration (NOAA) Climate Adaptation Partnerships Teams (formerly RISA).
- Collaboratively produce interdisciplinary research, tools, and knowledge that reduce weather and climate risks and impacts.
- www.southernclimate.org



Background and Motivation

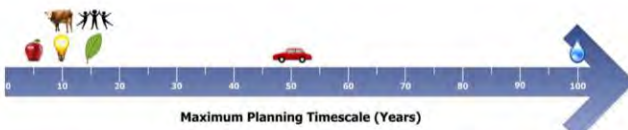
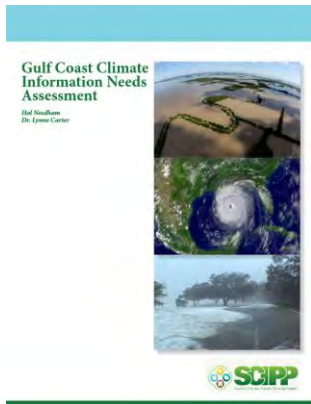
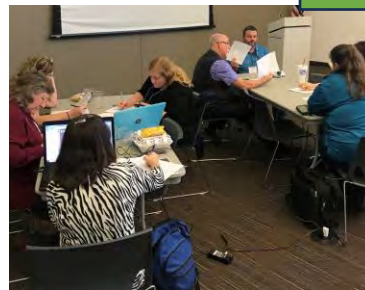


Figure 14: Maximum planning timescale for each sector, as stated by the participants.

Oklahoma



Arkansas



Winter Storm (Ice, Sleet, Snow)

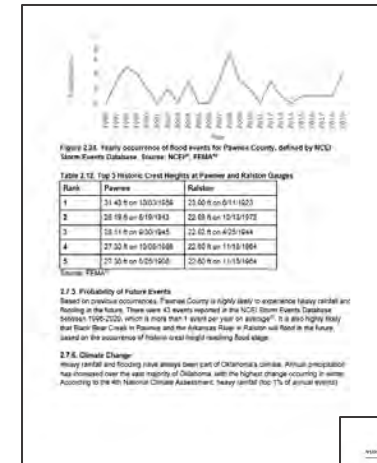
Data Limitations: Ice-free/floating ice data are very limited due to the complexity of observational networks (i.e., rain-falling rain, and snow can occur as a single event during single events).

SeaLevel-Changing-Point: The sea level rise (SLR) is based on the average SLR rate for the entire 21st century. The sea level rise rate is based on the average SLR rate for the entire 21st century. The sea level rise rate is based on the average SLR rate for the entire 21st century.

SeaLevel-Rising: The sea level rise (SLR) is based on the average SLR rate for the entire 21st century. The sea level rise rate is based on the average SLR rate for the entire 21st century.

SeaLevel-Falling: The sea level rise (SLR) is based on the average SLR rate for the entire 21st century. The sea level rise rate is based on the average SLR rate for the entire 21st century.

SeaLevel-Constant: The sea level rise (SLR) is based on the average SLR rate for the entire 21st century. The sea level rise rate is based on the average SLR rate for the entire 21st century.



2011-2012

2017-2018

2019-2022

Barriers

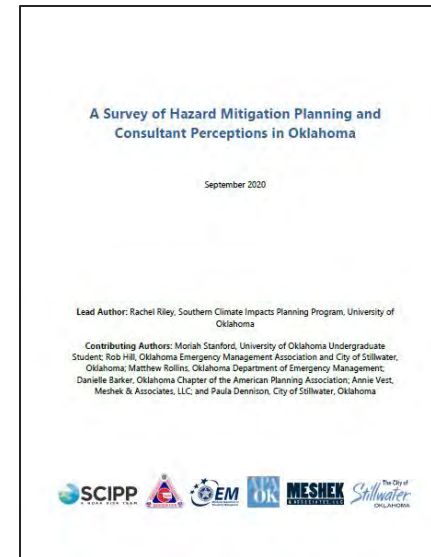
- **Immediate local priorities often trump long-term risk reduction. It is difficult to obtain buy-in from the city and county officials who have decision making power.** Prater and Lindell (2000); 2016 workshop in West Texas (Petersen et al. 2017); 2021 Oklahoma SCIPP virtual workshops



“Shared Learning Dialogue” in western Texas in 2016. Credit: S. Petersen, in Petersen et al. (2017)

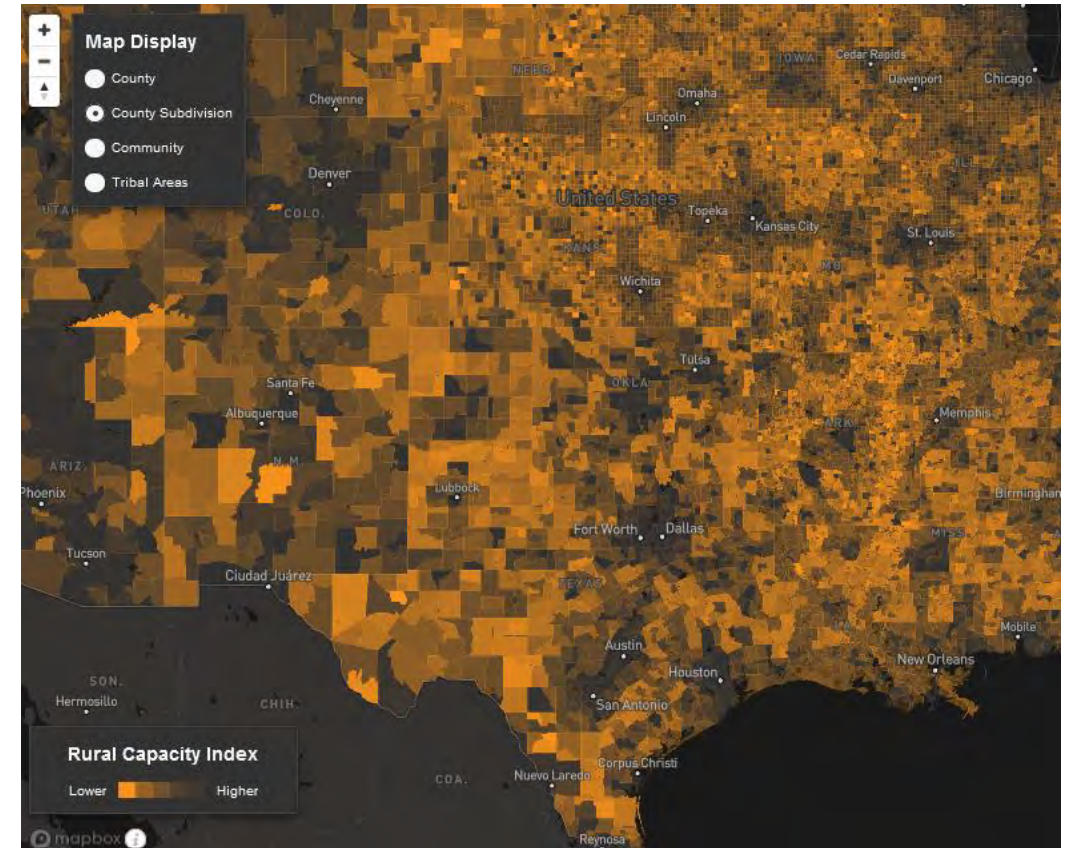
Barrier

- **Inconsistent application and complexity of FEMA requirements across regions and states makes the application process very difficult for some locals.** *Mitigation Planning Policy Update Summary of Feedback* (FEMA 2020); *Hazard Mitigation Planning and Consultant Perceptions Survey* focused on Oklahoma, N = 90 (Riley et al. 2020); 2017-2018 SCIPP workshops in Oklahoma and Arkansas



Barrier

- **The HMP process and interpretation of plan requirements is prohibitive for many communities due to limited capacity (i.e., time and expertise).** Cigler (2007); Headwaters Economics (2022) – BRIC context; Smith and Vila (2020) - HMA and SHMO context



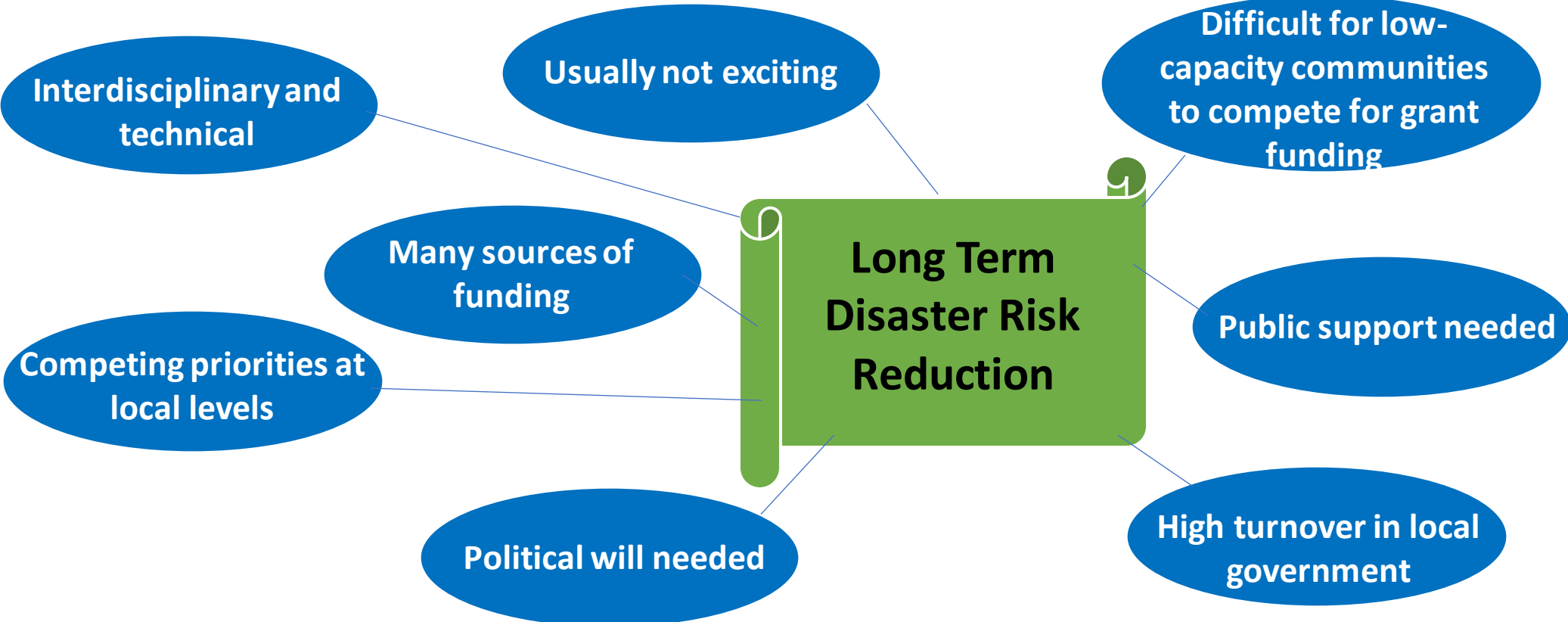
Source: Rural Capacity Index, Headwaters Economics, accessed 17 Oct 2023

Barrier

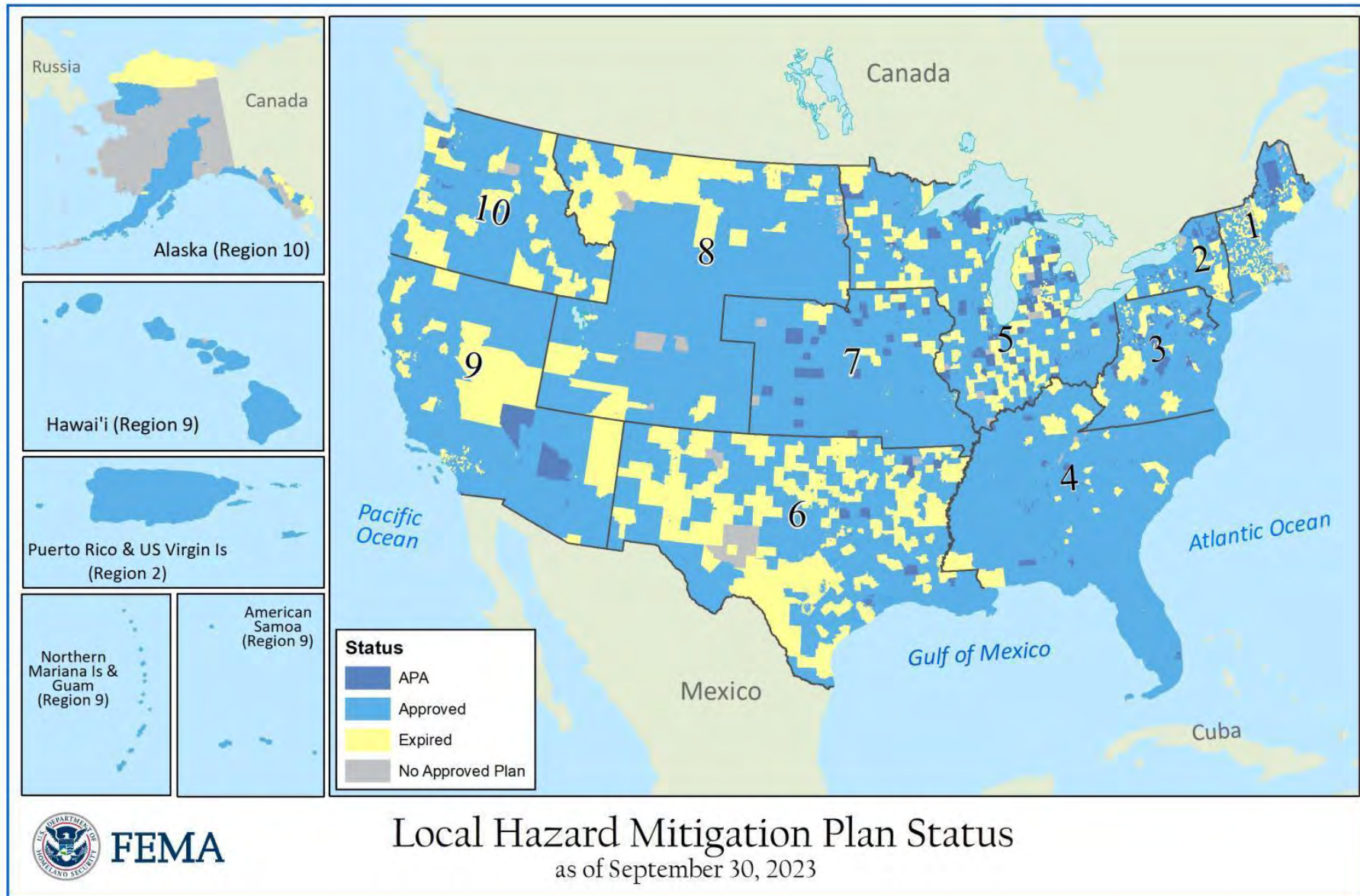
- **Many plans are of mediocre quality, and many jurisdictions across the country still don't have a plan or let their plans expire.**

Berke, Smith, and Lyles (2012); Lyles, Pennel, and Riley (2023); FEMA Local Hazard Mitigation Plan Status Map, 31 March 2022

Long term disaster risk reduction is complex and complicated.



Expired Hazard Mitigation Plans



Building Capacity for Hazard Mitigation Planning in Low-Capacity Communities

A partnership between SCIPP at the University of Oklahoma and the National Hazard Mitigation Association



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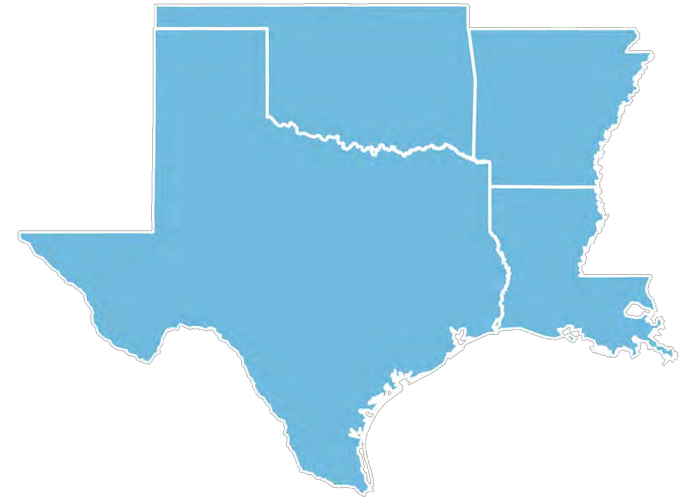
Yelena Martinez

Intern, National Hazard
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Purpose of Study

Engage with decision makers who work in or with low-capacity communities within Arkansas, Oklahoma, Louisiana, and Texas to **determine how to make the hazard mitigation planning process more meaningful and effective**. This, in turn, will help build planning capacity.



Low-Capacity: No single definition, but generally speaking, communities that lack one or more of the following:

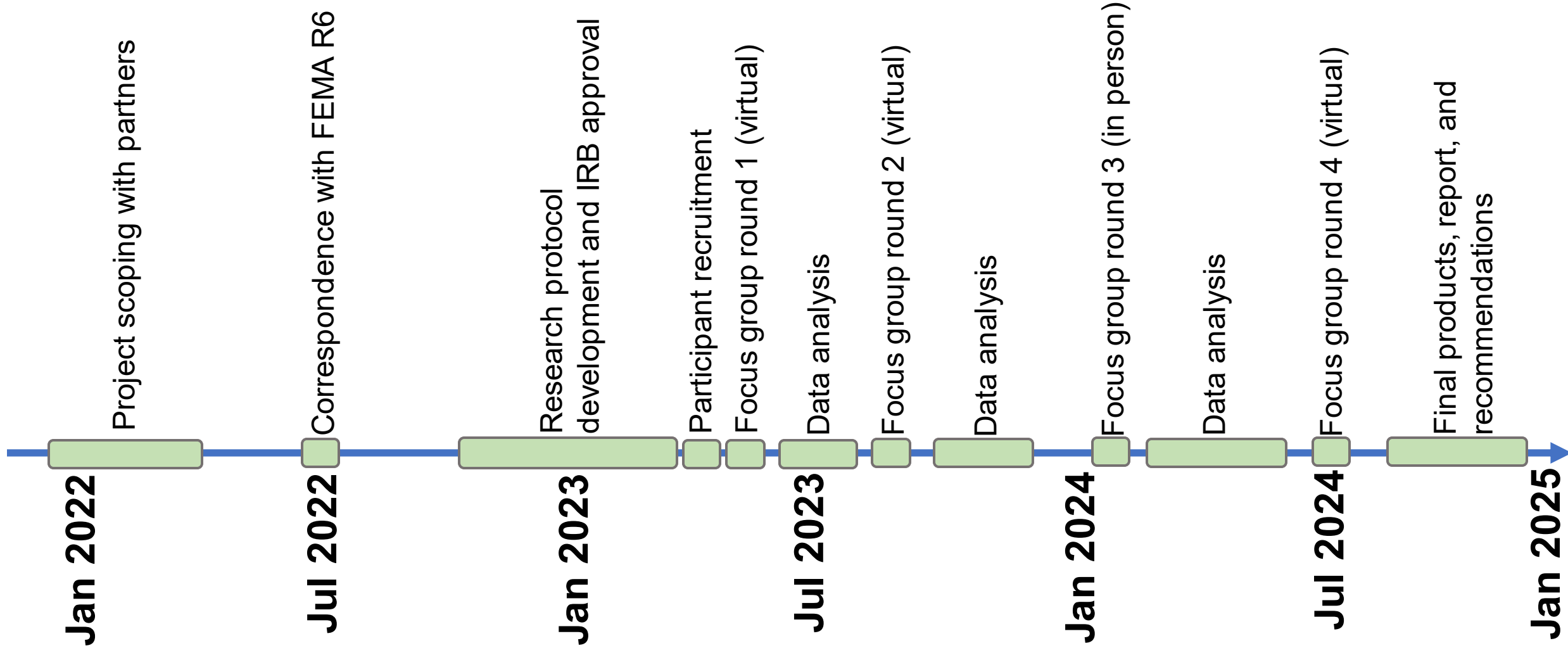
- expertise to apply for and/or manage federal grants
- technical expertise (e.g., engineering, GIS, natural hazards)
- resources
- public or political support

Research Questions

1. Why are most low-capacity communities unable to address their existing hazard-related challenges?*
2. What additional capacities and capabilities are needed so that low-capacity communities can address their hazard challenges that are being or will be exacerbated by climate change?
3. How should a hazard mitigation planning template be designed so it: a) better aligns with the capabilities and capacities of low-capacity communities and b) advances climate resilience and disaster risk reduction more broadly?
4. What hazard mitigation planning capabilities and capacity gaps exist that could be addressed by the NHMA Disaster Risk Reduction Ambassador Curriculum and other applicable training curriculums?

Research Timeline

University of Oklahoma Institutional
Review Board Approval #15610



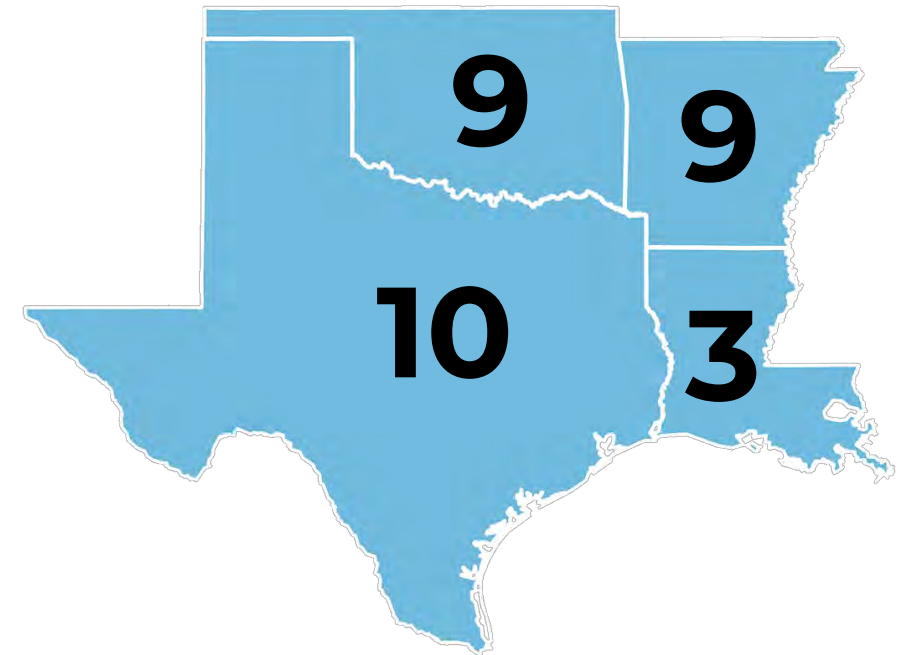
Methodology:

*University of Oklahoma Institutional
Review Board Approval #15610*

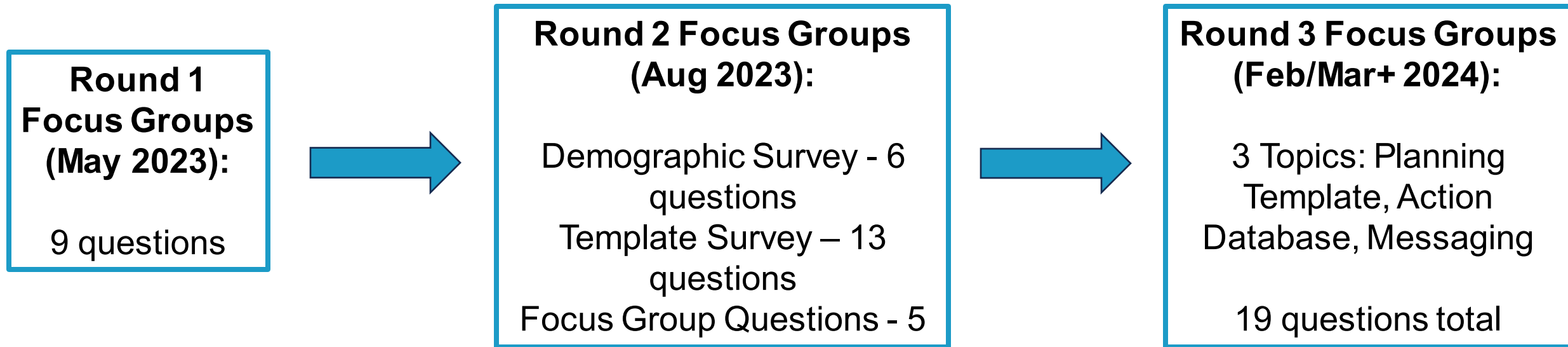
- **Purposive Sampling** (Singleton and Straits 2005)
 - Decision makers who work in or with a low-capacity jurisdiction(s) as it pertains to hazard mitigation planning and implementation
 - Decision makers (planners, emergency managers, city/town managers, private sector consultants) who have ideas and want to have a positive impact in their communities
 - State-based focus groups, virtual and in-person
 - Online surveys
- **Co-Production** (Meadow et al. 2015)
- Qualitative analysis of focus group data
- Descriptive statistical analysis of survey data

Research Participants to Date

- N = 31 planners, emergency managers, and/or city/town managers who work at local and regional scales and participated in at least one focus group session
- n = 28 public sector participants, n = 3 private sector participants
- N ≈ 160 jurisdictions across the four states



Data Collection So Far



RQ 1 Preliminary Findings

1. Why are most low-capacity communities unable to address their existing hazard-related challenges?

- lack of buy-in from county commissioners and other jurisdictional leaders
- lack of knowledgeable staff within jurisdictions and private firms
- staff turnover
- frequent changes to federal planning requirements
- excessive planning requirements
- lack of return on time investment
- like “pulling teeth” to get people involved

“... you think you qualify for a certain grant and spend a lot of time working on it and then you’re told you don’t meet the qualifications.” – study participant

RQ 2 Preliminary Findings

2. What additional capacities and capabilities are needed so that low-capacity communities can address their hazard challenges that are being or will be exacerbated by climate change?

[Partial finding] Currently the topic of climate change is overwhelming for some participants and is sometimes difficult to navigate locally (political implications). Knowledge about how to address it on practical levels is lacking.

“I’m just a grant writer. I’m not a hazard mitigation expert. . . . I’m sure not an expert in climate change.” – study participant

RQ 3

Hazard Mitigation Planning Template

Instructions

This Template incorporates the Local Plan Review Guide (October 2011) and the Local Mitigation Planning Handbook (March 2013) references. To effectively use this document it must be utilized in color. References to the Plan Review Guide (PRG) will be in GREEN and the references to the Local Mitigation Planning Handbook (HB) will be in RED. For elements with multiple requirements, the references will be separated with commas.

Example:

Who are the participants including jurisdiction they represent and what they contributed to the plan? (CFR 201.6 (c)(1)) PRG p15 ; HB p3-9, 3-10

Introduction

- Short description of the planning area and the participants of the plan. HB Task 1 and 2 p2-6

Planning Process

- Overview of the current planning process PRG p14-17 ; HB p3-9, 3-10, 7-1
 - How was the plan prepared from start to finish? HB p2-6
 - Who are the participants including jurisdiction they represent and what they contributed to the plan? (CFR 201.6 (c)(1)) PRG p15 ; HB p3-9, 3-10
 - Who are the stakeholders (name/title) and how were they invited to participate? Stakeholders must include local/regional agencies, agencies that have the authority to regulate, and neighboring communities. (CFR 201.6 (b)(2)) PRG p15-16 ; HB p2-2, 3-1, 3-9
 - How was the public invited? If any members of the public participated, how was their input included in the plan? PRG p16 ; HB p3-3, 3-6, 3-9 How will the public be invited during the update? (CFR 201.6 (b)(1) and (c)(4)(iii)) PRG p17 ; HB p3-8, 3-10, 7-2
 - What plans were used in the development in the plan and how? (CFR 201.6 (b)(3)) PRG p17 ; HB p4-5
 - How will the plan be monitored, evaluated, and updated? Include who (by title/name of department), when, and how this will be done. (CFR 201.6 (c)(4)(i)) PRG p 17 ; HB p7-1
 - For plan updates, describe if and how any priorities changed since the previously approved plan. If no priorities have changed, plan updates may state previous information remains valid. PRG p27 ; HB p6-12

Region 6

1

November 2015

Risk Assessment

- For each hazard follow profile layout.
 - Identify and describe each hazard: HB p5-2
 - Where does each hazard occur in the planning area? Identify if this varies within each jurisdiction. (CFR 201.6 (c)(2)(i)) PRG p19 ; HB p5-3
 - What is the anticipated size/severity of each hazard for each jurisdiction? Use scientific scales when available. (CFR 201.6 (c)(2)(i)) PRG p19 ; HB p5-3
 - What are the previous occurrences for each hazard and jurisdiction? (CFR 201.6 (c)(2)(i)) PRG p20 ; HB p5-4
 - What is the probability of each hazard for each jurisdiction when it varies? (CFR 201.6 (c)(2)(i)) PRG p20 ; HB p5-4,5
 - Discuss vulnerability and impacts to each hazard for each jurisdiction. Each jurisdiction should get its own paragraph or section containing all the hazards it's vulnerable to. For flooding hazard, identify the number and type of repetitive loss properties. (CFR 201.6 (c)(2)(ii)) PRG p20-21 ; HB 5-9 to 12, 5-13 to 19
 - For the plan update, describe any development that has occurred and discuss how this has affected each jurisdictions vulnerability and impact. PRG p26 ; HB 5-2

Mitigation Strategy

- Capabilities (Separate by jurisdiction) (CFR 201.6 (c)(3)) PRG p23 ; HB 4-5
- Is the community participating in the NFIP? Describe each jurisdiction's continued compliance to the program. (CFR 201.6 (c)(3)(ii)) PRG p20, 23 ; HB 4-4
- Goals (CFR 201.6 (c)(3)(i))
 - Include goals to reduce/avoid long term vulnerabilities identified in the risk assessment. PRG p24 ; HB 6-2
- Actions/Strategies Template (separate by jurisdiction) (2 per hazard per jurisdiction) (CFR 201.6 (c)(3)(iii)) PRG p24-25 ; HB 6-3, 6-11

Describe the action (include actions that mitigate new and existing buildings and infrastructure)	
Responsible Party/Department	
Hazards Addressed	
Potential Implementation Timeline	
Potential Funding Sources	

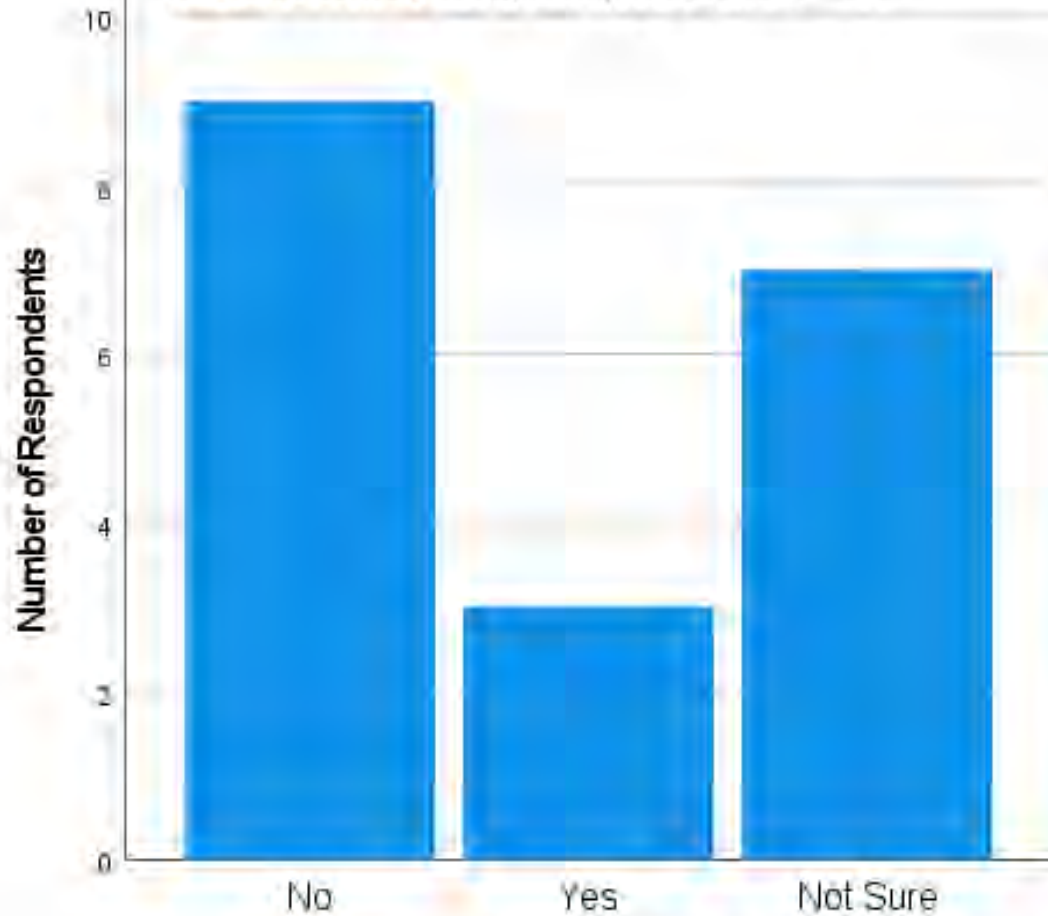
- Describe how the actions will be prioritized when funding is available. Emphasize the cost vs. the benefit. (CFR 201.6 (c)(3)(iv) and (CFR 201.6 (c)(3)(iii)) PRG p25 ; HB 6-7, 7-1
- Identify local planning mechanisms that the mitigation plan can be integrated into. Describe the process the each jurisdiction uses to complete integration into these plans? (CFR 201.6 (c)(4)(ii)) PRG p25 ; HB 6-9, 7-1

Region 6

2

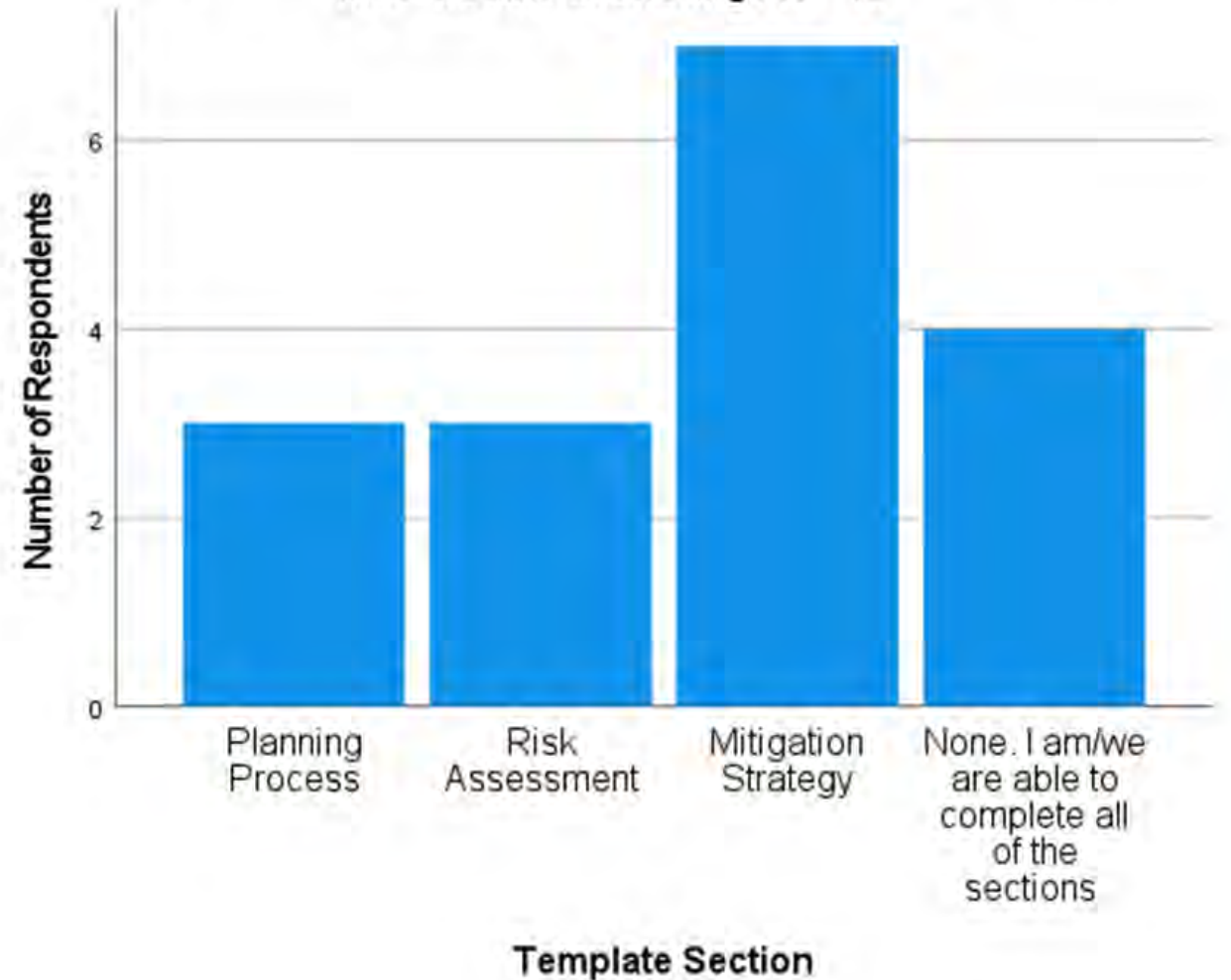
November 2015

Have you ever used the template that is available from FEMA Region 6 to help complete your plan? N = 19



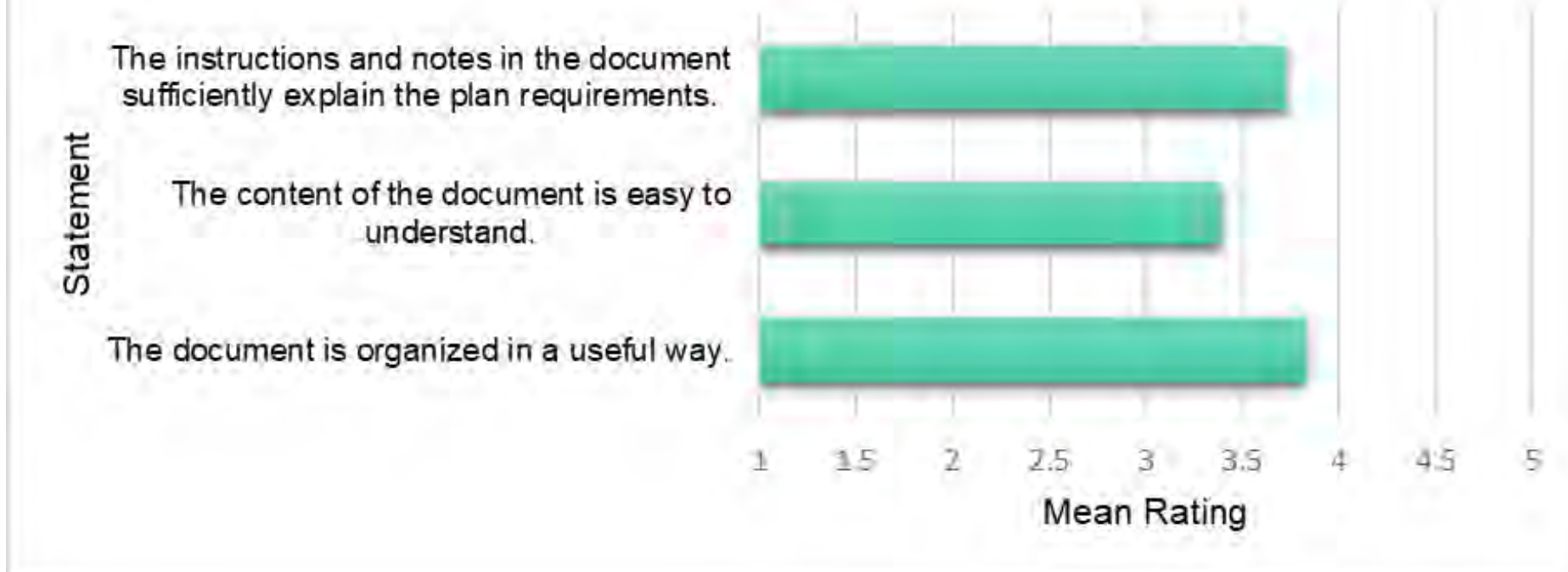
Have you ever used the template that is available from FEMA Region 6 to help complete your plan?

Generally speaking, what section of the template do you have the most trouble answering? N = 19



General perceptions of the template, mean rating.

N = 18



Scale: Strongly Disagree (1) to Strongly Agree (5)

RQ 3 Preliminary Findings

3. How should a hazard mitigation planning process be designed so it a) better aligns with the capabilities and capacities of low-capacity communities and b) broadly advances climate resilience and disaster risk reduction?

a) Existing R6 template is somewhat useful but should be improved:

- Update to align with latest FEMA HMP handbook.
- Add hyperlinks (definitions, to hazards and other data).
- Add or link to successful mitigation examples. Confusion about what projects qualify as mitigation.
- Clarity on some HMP requirements, both prior requirements and new climate change requirements

RQ 4 Preliminary Findings

4. What hazard mitigation planning capability and capacity gaps exist that could be addressed by the NHMA Disaster Risk Reduction Ambassador Curriculum and other applicable training curriculums?

- FEMA puts out a lot of resources and administers some trainings but often too broad.
- Training format ideas:
 - Need an in-person offering for a first timer. A virtual format would be sufficient for refresher.
 - For virtual formats: short duration.
 - Offer at relevant state conferences/meetings (floodplain managers conference, emergency management conference, municipal league conference).

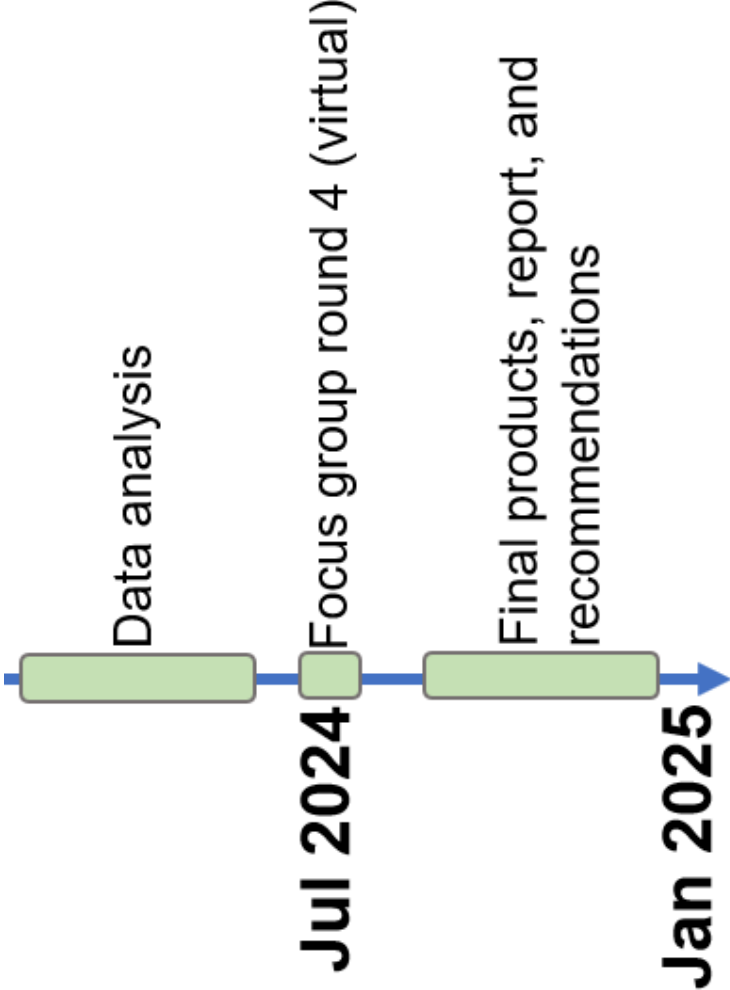
“Am I alone in feeling like there’s no good training on this?” – study participant who is relatively new to hazard mitigation planning

“I’ve always felt like Region 6 has a real disconnect with the rural areas.” – study participant

High Level Preliminary Conclusions for Under-resourced / Low-Capacity Context

- Existing FEMA Region 6 template is okay but could be much better. Will be recommending improvements.
- Capacity and expertise limitations are very real. Pursue the following to build capacity:
 - Action Database
 - Many FEMA constraints on what actions are eligible for certain grants.
 - Public relations “campaign” for hazard mitigation
 - Public relations “campaign” on climate change impacts that are somewhat localized (e.g. state level)
 - To address climate change in HMP: Locals need bite-sized information and recommendations.
 - To address climate change broadly: Increased sophistication of workforce, collaboration amongst city, county, and parish departments.
 - Training is absolutely needed.
 - FEMA offers trainings and resources but often too broad.
 - Many people working in the hazard mitigation planning field or who end up being in charge of applying for and executing grants are not formally trained.

Future Work



Resources

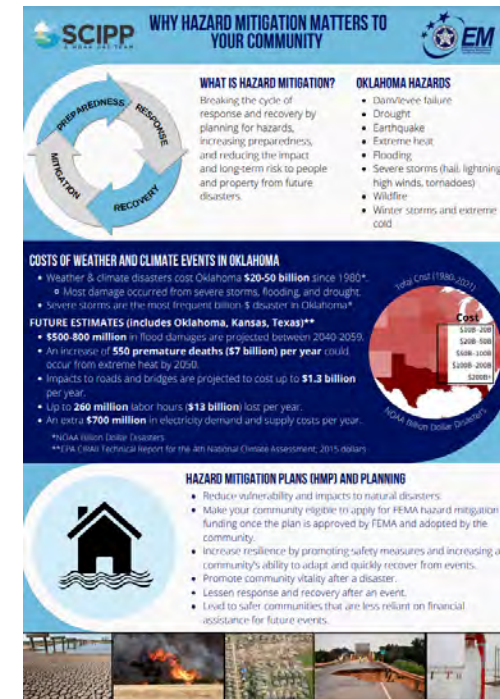
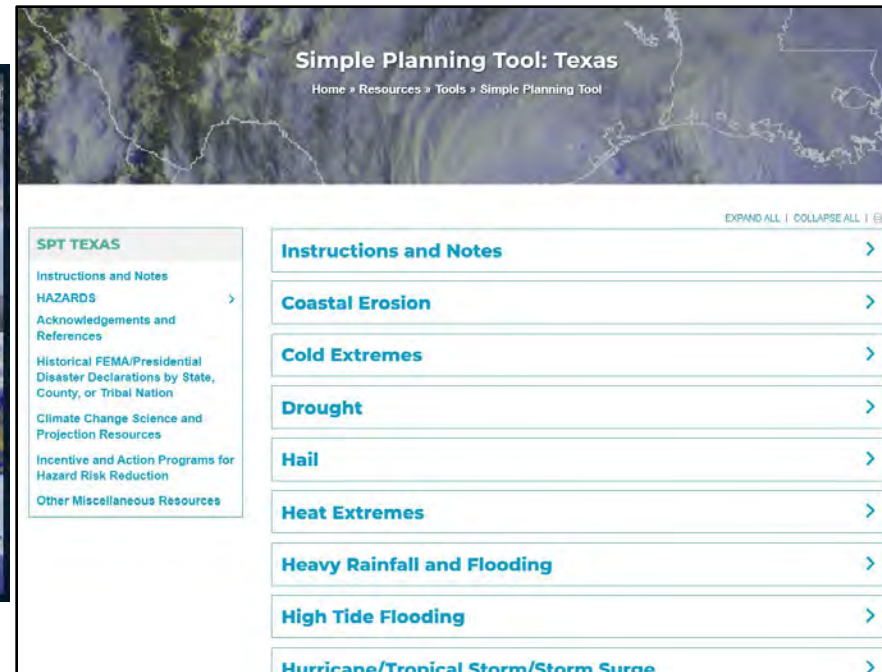
Simple Planning Tools for Climate Hazards (“SPT”)

Arkansas, Louisiana, Oklahoma Texas

<https://www.southernclimate.org/resources/tools/simple-planning-tool/>

Hazard Mitigation Benefits Document

<https://www.southernclimate.org/resources/documents/> → Filter Type: Fact Sheet or Brochure



Thank You. Questions?



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Also present on today's webinar:

Danielle O'Neal, City of Yukon, Oklahoma
Tina Cole, Northwest Arkansas Economic Development District
John Henderson, City of Wichita Falls, Texas
Delaney Pruett, Panhandle Region Planning Commission
Ed Hecker, National Hazard Mitigation Association



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