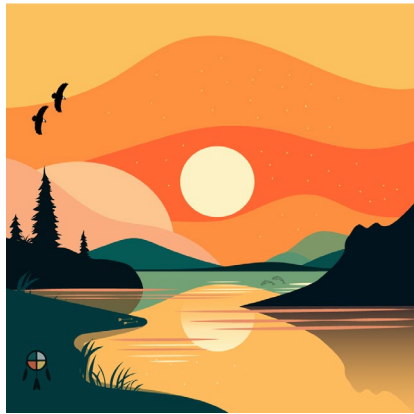


# Risk Communication Scenario Simulation Slide Deck

A partnership between the National Center for Disaster Preparedness and Twilio

DRAFT - PRELIMINARY VERSION



## Scenario Simulation Design Workshop: Risk Communication to Bridge the Generations of Tribal Voices

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## Opening Prayer

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### Acknowledgement and Traditional Blessing

## Who We Are

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The National Center for Disaster Preparedness (NCDP) focuses on:

- **Research**
  - Analyze strategies to enhance system readiness
- **Educate**
  - Educate and train the workforce
- **Practice**
  - Foster community preparedness





## Funded Project

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- This project was made possible by Twilio.org
- Offering text-based communication technologies and strategies to enhance disaster risk communication in Tribal Nations
- Developing, delivering and evaluating a national training program that integrates communication tools into hands-on classroom activities

Tools are based upon work initially supported by the National Science Foundation under Grant No. 2103794, in collaboration with the Wu Lab in the Columbia University Department of Computer Science. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

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## Data Statement

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- Any information will be used for instructional purposes only
- Any personally identifiable data exchanged in today's training will be secure and used solely for conference purposes

## Workshop Facilitators

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- **Dan Osgood, Ph.D**, Director of the Financial Instruments Sector Team at the National Center for Disaster Preparedness, Climate School, Columbia University
- **Erika Porter, MHSEM**, is a trainer at the National Center for Disaster Preparedness, Columbia University, for its Tribal Nations programs. She is also the Founder and President of My Freedom Living, while pursuing a Ph.D. in Organizational Leadership. Erika works alongside Tribal Nations and disaster-impacted communities to strengthen resilience and build capacity where it's needed most.

## Purpose


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Together, we will:

- Explore how Tribal Nations can use text messaging to both send and receive information during emergencies
- Review practical approaches that can strengthen community preparedness and response
- Collect participant feedback and ideas to shape future project development
- Walk through examples and scenarios to improve processes

## Why Disaster Communications Breakdown 8

- Infrastructure & access**
  - Limited cell service / broadband
  - Large, spread-out communities
- Systems**
  - Tribal, BIA, state systems not aligned
  - Data systems don't connect
- Trust**
  - Historical distrust of outside messaging
  - People rely on local, known voices
- Capacity**
  - Small teams, limited funding
  - No dedicated communication staff

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## One-Way Alerts (Strengths & Limits)

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### Strengths

- Fast, scalable
- Works for evacuations, weather, road closures
- Works on basic phones

### Limitations

- No feedback (don't know who needs help)
- Can be ignored / misunderstood
- Doesn't address language or literacy
- Often feels impersonal and disconnected

## Alerts and One-Way Communications

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- Do people have cell phones?
- Do people have coverage?
- Do people have internet access?
- What types of alerts currently exist?
- What are some of the limitations of only an alert message?
- Who might be excluded?
- What complementary strategies are important?



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## What is Two-Way Communication?

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- A communication system where messages go both directions:
  - Sending messages and receiving responses back
  - Not just alerts—people can respond back
- Creates real time interaction between the community and emergency managers

## Getting Started Demo and Exercise

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With a cell phone: text (or WhatsApp) the word

**Communicate**

to

**+1 (646) 217-0881**

#bye to escape

[Latest Results](#)

**Data Disclaimer:**

Information shared through this demo will only be used for today's workshop exercise. No personal data will be shared outside of this session, and responses will not be used for any other purpose.

## Benefits and Challenges of Two-Way Communication

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### Benefits of Two-Way Communication

- Improves situational awareness
- Faster, better decisions
- Builds trust through response
- Connects:
  - Emergency management
  - Tribal leadership
  - Community

### Challenges of Two-Way Systems

- Requires staff to monitor/respond
- High message volume
- Needs
  - Clear protocols
  - Training (staff + community)
  - System integration
- Risks
  - Misuse or false reporting
  - Without a plan, it can become overwhelming

## Additional Community Challenges

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- Capacity
- Small emergency management teams
- Limited funding
- No dedicated PIOs
- Cultural & Language
- Language differences (Elders)
- Messaging not culturally relevant
- Geography
- Large land areas, remote locations
- Limited road access during disasters

## How Two-Way Communication Helps

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Real-time needs: "1 = safe, 2 = need help"

Community reporting: roads, fires, flooding

Resource coordination: food, shelter, transport

Follow-up: "Did you receive help?"

Elder check-ins

**Moves from guessing to knowing**

## Data, Privacy & Tribal Control

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### Key Questions:

Who owns the data?  
Where is it stored?  
Who can access it?  
Is it shared outside the Tribe?

### Key Questions:


Data misuse  
Loss of trust  
Best Practices  
Tribal data sovereignty policies  
Consent (opt-in / opt-out)  
Minimal data collection  
Tribal-controlled systems  
Data-sharing agreements

**Bottom Line:**  
If the Tribe doesn't control the data, the Tribe doesn't control the system

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# Scenarios

(Lets text)

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## Workshop Scenario: Flooding and Risk Communications

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*Imagine you are expecting heavy floods on a reservation and there are people living in a flood-prone area. Before the flood hits, it's your job to make sure that they evacuate to a shelter, or can shelter in place.*

### Discussion:

- How do we tell people to evacuate or go to a shelter?
- How would you communicate to people?
- What strategies and methods would you use?

## Illustration of Two Way Disaster Communication

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With a cell phone: text (or WhatsApp) the word:

Flood

to

+1 (646) 217-0881

#bye to escape

## Moving from Sending only to also Receiving

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What if you could answer questions your community has during a disaster?


**Could Two-Way Communication offer:**

- Better equipped planning and understanding of questions and issues?
- Safe space for sensitive issues?
- Communication with each other in the community?
- Interactive, scenario-based learning?
- Create new challenges?

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# Scenario Simulation

## Field Test

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## Example: Colombia Coffee Farmers

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### Co-designing system (Colombia)

- Built With Coffee Farmer cooperatives
- Scenario: how to design farmer assistance payments for different kinds of droughts
- “Guess which year your neighbors would say was worse”
- Uses environmental data (Satellite products)
- Winner was 16 year old—with her Grandmother
- Lessons:
  - Identify answers of serious from people playing for fun
  - Serious players provided accurate guidance
  - Build approaches for partnering phone savvy with experienced



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## Example: WENDOUFI Pastoralist Simulation 23


### Co-designing system (Senegal)

- Building with pastoralist communities (paused)
- Scenario: where to move livestock based on water availability
- “Guess which pond your friends would go to”
- Uses environmental data (NASA products)
- Lessons:
  - Include voice messages in local languages
  - Integrate with radio shows



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# Tabletop Exercise (TXX)

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## Tabletop Exercise (TXX)

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- Two way communication can be tested through tabletop exercises
- Today's flood scenario is a simulated community exercise completed together
- These exercises can identify communications gaps and areas of improvement

## TXX: Flooding Expand to Two-Way Communications

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*Imagine you are expecting heavy floods on a reservation and there are people living in a flood-prone area. Before the flood hits, it's your job to make sure that they evacuate to a shelter, or can shelter in place.*



*Given the flood risk in your community. Responders are working to understand its extent people will participate in evacuation and what are some of the challenges they may face.*

## TXX: Flooding Expand to Two-Way Communications

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With a cell phone: text (or WhatsApp) the word:

**Safe**

to

**+1 (646) 217-0881**

#bye to escape

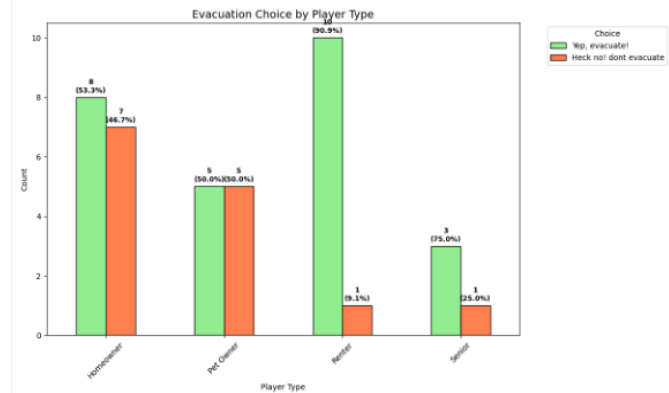
## Scenario Results from previous related version 28

- Evidence says people with animals are less likely to evacuate, (eg [doi.org/10.3390/ani5020173](https://doi.org/10.3390/ani5020173))
- Below are some results from our text game at the time this slide was made

### • What do you see?

- A link to the most recently tabulated figures:

[Most Recently tabulated Figures](#)



## Discussion and Reflections

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### Discussion of two-way communications:

Is there potential for:

- Increased preparedness and situational awareness among Tribal Nations?
- Real-time insights for emergency managers?
- Improved trust and engagement with residents?

What are your concerns?

## TXX: Flooding and Sheltering

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*Imagine you are expecting heavy floods on a reservation and there are people living in a flood-prone area. Before the flood hits, it's your job to make sure that they evacuate to a shelter, or can shelter in place.*

*Given the flood risk in your community. Responders are working to understand its extent people will participate in evacuation and what are some of the challenges they may face.*



*Now that we have a good understanding of what people may do in the case of an evacuation for this flood, **we need to know how to best resource and coordinate the shelters in the community.***

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## Workshop Scenario Demo: Flooding and Sheltering

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With a cell phone: text (or WhatsApp) the word

**Coordinate**

to

**+1 (646) 217-0881**

#bye to escape

## Scenario Results–Keywords: To be continued!

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After the first round:

- Did we want more information?
- What coordination successes occurred?
- What coordination failures happened?

Now text “coordinate” again, and answer the same questions with more information

- Do we do better?
- Or, are things changing too fast?

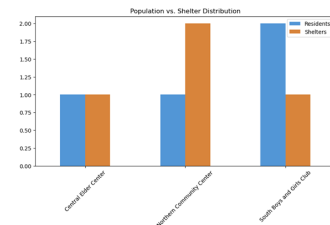
[Most modern results will show up here](#)

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### Shelter Operations Dashboard

Timeline: Latest Response | All Time to Now

UNMET NEEDS Medical facilities	RESIDENTS REQUIRE TRAVEL 2	RESIDENTS SERVED AT LOCATION 2
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### Service Gap Analysis

Service Type	Total Need	Total Offered	Status
Livestock facilities	0	2	Sufficient
Medical facilities	3	1	Under-supplied
Senior transportation	1	1	Sufficient

### Regional Breakdown

Region Name	Population	Shelters Available	Hub Status
Central Elder Center	1	1	N/A
Northern Community Center	1	2	N/A
South Boys and Girls Club	2	1	Active Hub

Note: Services offered but not utilized: Livestock facilities

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## Discussion and Reflections

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- What are some of the benefits from working with this scenario?
- What might the two-communication allow us to do more effectively?
- From your vantage point, what about the scenario would need to be updated to match your community?
- What questions would you have asked?
- What information is still missing?

## Discuss: Other Types of Scenarios

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What other types of scenarios or tabletops may be most relevant for your community?

## Q&A

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### Questions?

If you would like to work with us to make a scenario simulation, please let us know:  
[daniel.osgood@columbia.edu](mailto:daniel.osgood@columbia.edu)

## Acknowledgements and Appreciation

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- Thank you for your participation, collaboration, and shared knowledge.
- Your feedback and experiences help improve emergency communication and preparedness efforts for Tribal Communities

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**Twilio Point of Contact:** Lauren Hewitt ([lhewitt@twilio.com](mailto:lhewitt@twilio.com))

## What would you say?

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- If you would like to think through what messages you would use in one of these simulations, please feel welcome to put your own words in the forms below:
- Safe: <https://ee.kobotoolbox.org/x/R6RRxgNi>
- Coordinate: <https://ee.kobotoolbox.org/x/P7QTS1hj>