Vulnerability Indicators: Measuring Effects of Social Factors on Water Security Conditions

Focus Group Guide

Paperwork Reduction Act Statement: We are collecting this information subject to the Paperwork Reduction Act (44 U.S.C. 3501) to develop a set of indicators describing socio-cultural and economic vulnerability across key thematic areas of water insecurity – availability, quality, and access. The project team reviewed the existing scientific literature on this subject and identified a preliminary set of water insecurity indicators that we now seek to evaluate against the professional expertise and lived experiences of individuals in the Upper Colorado River basin. The information collected during this focus group will help us better understand the validity of these indicators as well as any potential gaps in our understanding of water insecurity. We may not conduct, or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB Control Number. OMB has reviewed and approved this survey and assigned OMB Control Number 1028-NEW, Expiration Date: xx/xx/xxxx.

Estimated Burden Statement: We estimate this focus group will take you 60 minutes to complete, including time to read instructions, gather information, and complete the focus group session. You may submit comments on any aspect of this information collection to the Information Collection Clearance Officer, U.S. Geological Survey, 12201 Sunrise Valley Drive MS 159, Reston, VA 20192.

Text for focus group e-mail invitation:

The US Geological Survey's (USGS) Water Resources Mission Area (WMA) is tasked to monitor, assess, conduct targeted research, and deliver information on a wide range of water resources and conditions including streamflow, groundwater, water quality, and water use and availability.

This project is developing a set of indicators describing socio-cultural and economic vulnerability across key thematic areas of water insecurity – availability, quality, and access. The project team reviewed the existing scientific literature on this subject and identified a preliminary set of water insecurity indicators that we now seek to evaluate against the professional expertise and lived experiences of individuals in the Upper Colorado River basin. The information collected during this focus group will help us better understand the validity of these indicators as well as any potential gaps in our understanding of water insecurity.

Your participation is voluntary. Your input will be confidential, and no individually identifying information will be reported. We ask for your name and contact information to ensure that we able to contact you for follow up interactions, and to prevent unnecessary and repeated participation requests. Your participation is appreciated.

Script for focus group:

Note: The asterisk (*) indicates follow up prompts.

Thank you all for taking the time to be here today. I am _[name]_ and I serve as _[role]_ on the project team. With me is _[name and role on team]_ who will take notes and provide any other assistance we may need. If you have questions related to logistics or Teams [or alternative collaboration platform] related questions, or if you have comments or questions throughout this meeting feel free to type it into the chat box and _[note taker name]_ will help you out.

We want to welcome you and thank you for sharing your time and expertise to help us explore indicators of water insecurity. Your input will help to validate indicators identified from the scientific literature on water insecurity. This is one of several focus groups being held with our partners to support this process.

We will report responses in aggregate and will not identify individual respondents in any of our materials.

We'd like to begin with a short presentation on the motives for this focus group, we'll ask a few broad questions, then drill down on different topics. Is that okay?

[Wait for confirmation from respondents]

A few housekeeping notes. We don't know how familiar you are with Teams [or alternative collaboration platform] so let's go over some of the features you may use.

[Show slide with platform screen shot (hand raise feature, chat box…)]

Please share your video if you have the ability to do so and if you are comfortable doing so. The focus group is scheduled for 1 hr.

Are there any questions so far?

[Wait for responses]

With your permission we'd like to record this focus group. All recordings will be stored securely. They will only be used to generate transcripts of our conversation, and to ensure accuracy of those transcripts. Do you consent to us recording this focus group? Please use the link now being placed in the chat to anonymously indicate your response. Alternatively, you can type "agree" in the chat, your response there will be visible to everyone on the call.

[Wait for confirmation from respondents]

[If all respondents approve recording]

Thank you. I will start the recording now.

[If all respondents do not approve recording]

Thank you. We will work to take detailed notes on your responses.

We will now talk about the motives for holding these focus groups.

[Show PowerPoint slides to introduce project]

Are there any questions on this material so far?

[Wait for responses]

For the rest of the focus group, we will be using Mural, which is a more dynamic platform that uses virtual sticky notes. We will go over the features that you will be using for this activity.

[Show slide with Mural interface screen shot and explain how to access]

Please feel free to use the chat function on Teams or respond verbally by unmuting yourself.

Are there any questions so far?

[Wait for responses]

[Display background questions in Mural]

To help us keep the transcripts accurate and to get to know each other a little better, please answer the information under the Background section in this Mural board by placing a new sticky note under the prompt.

If you have questions at any point during this focus group, we also have a teammate monitoring the chat so feel free to answer there if you prefer.

Let's take 5 mins to answer these questions and then we'll come together and share.

Are there any questions on this?

[Wait for responses]

Background Questions (These questions will be set up as the first section in Mural)

a) First Name _____
b) Last Name _____
c) Organization _____
d) Position _____
e) Email Address _____
f) Duty location _____
g) Organization Category
    - o Congress
    - o Federal
    - o State Agency
    - o Tribe
    - o County
    - o City, Town, Township
    - o University
    - o NGO
    - o Private
    - o Other: _____

h) Role Category (select all that apply)
    - o Scientist/researcher
    - o Natural resource manager
    - o Policy maker/advisor
    - o Regulator
    - o Advocate

- o Consultant
- o Lobbyist
- o Landowner
- o Business owner
- o Press/reporter
- o Other: _____

i) Sector (select all that apply)

- o Water resources
- o Water utility
- o Manufacturing
- o Energy/minerals
- o Agriculture
- o Municipal
- o Forestry
- o Fishing
- o Disaster/emergency manager
- o Land development/construction
- o Environment/conservation
- o Climate change adaptation
- o Transportation
- o Health
- o Tourism/recreation
- o Private citizen
- o Other: _____

j) This agency/organization has responsibility for: (select all that apply)

- o Developing water related policy
- o Managing water resources
- o Monitoring water quality
- o Monitoring water use
- o Potable Water distribution
- o Agricultural use
- o Hazard Response
- o Other: _____

Thank you for sharing that information. We will now move on to a new section.

----------[New Topic]----------

[Display new section in Mural]

We want to learn more about the context in which you may use social vulnerability data in your work:

Section 1. Context for using water insecurity data

1) *Please tell us a little about the mission of your agency and the role your job plays in supporting this mission.*

2) *Do you consider socioeconomic data as a part of your job (For example in analyses and/or decision making)? Examples of socioeconomic data include age, gender, marital status, income, family structure, race, and ethnicity.*
    a. *[If no] Why is that?*
    b. *[If no] Do you think it would be helpful to include socioeconomic data in your workflows?*
        i. *[if no] skip to ranking section (section 3)*
    c. *[if yes] What conditions/factors determine when and how you use socioeconomic data?*
        i. *Are there guidelines or predetermined factors you consider?*
        ii. *Are there particular events/hazards that you look at?*

    Thank you for sharing that information with us.

----------[New Topic]----------

Section 2. Water insecurity data use (cont.)

3) *Could you provide some examples of socioeconomic data that you use to help analysis/ decision-making?*
    a. *What is the purpose(s) of using that data?*

4) *Which types of data tend to be the most helpful for your needs?*
        i. *Why?*
    b. *What's least helpful?*
        i. *Why?*

5) *How often do you use that data for analysis/ decision making?*
    a. *Most helpful data*
    b. *Least helpful data*

6) *What sources are you using for your data? Where does the data you use come from?*

7) *What geographic scale do you typically use for your work?*

I'd like to summarize what I am hearing. I think there is consensus that [social factors a, b, c] are important or often assessed in your workflows but [social factors x, y, z] are not.

[Moderator and assistant summarize the key indicators mentioned and any differences in respondent opinion on usage and utility]

8) *Does that sound accurate? [get consensus on accuracy of summary from the respondents. Review any questions where respondents have significant disagreement with your summary]*

9) *Think about the questions/challenges you typically address and those you may need to address in future. Are there data that you currently don't have at your disposal that would be useful/ insightful for addressing those questions/challenges?*
    a. *Why would these data be so useful?*

Thank you for sharing.

Okay, let's shift to a more interactive activity.

----------[New Topic]----------

[Display section in Mural for the next activity]

In this section we will be working with social vulnerability indicators identified in previous USGS research.

Section 3. Ranking/ validating indicators

We are now displaying the results from a recent review of existing research on water insecurity indicators. These were drawn from scientific literature which measured factors of water insecurity in the western United States. [display figure].

Here are some definitions to help us get started. Additional definitions for the indicators that you will be presented next will be located [in the Mural board for this exercise].

An indicator is: A variable we can measure, and which represents a concept of interest such as age or family size.

We define water insecurity as: a situation where a population cannot maintain access to adequate quantities of water at an acceptable quality to sustain livelihoods, development, and human and ecosystem health.

Please take some time to examine these indicators and feel free to use the glossary to provide definitions for those that you are unsure about.

[Give participants about 3 mins]

In the diagram we arranged the indicators found in the meta-analysis based on the information supporting their use. The colors indicate different dimensions of vulnerability with which the indicators were associated.

Demographic Characteristics	Socioeconomic Status	Living Conditions	Exposure

Age (e.g., total pop over 65, % pop below 18)	Education (e.g., % with less than high school education, % bachelors degree)	Lifelines & Infrastructure (e.g., road density, community water systems out of compliance)	Exposed areas/ facilities (% block groups within floodplain)
Race/ Ethnicity (Hispanic, Asian)	Income (total household income median income)	Land Use (% urban cover, % wetland)	Mitigation (crop insurance, irrigation coverage)
Family Structure (household size, female-headed households)	Wealth (% pop in poverty, households below poverty line)	Population (population density, total population)	Hazard Extent (impaired rivers, HABs distribution)
Gender (% female, % female labor force)	Employment (% unemployment, diversity of employment)	Resource Dependence (groundwater dependence, per capita water consumption)	Losses Suffered (property damage, flood deaths)
Language Proficiency (English language proficiency)	Occupation (% in service sector, agricultural employment)	Rurality (% rural, distance from metro area)	Preparedness (early warning systems, disaster prevention & preparedness - $/yr/capita)
Migration (immigrants, displacement risk)	Median Rent (median house rent)	Urbanization (inner-city neighborhoods, % urban)	# of Events (# cold spell days)
Social Dependence (% households receiving Social Security Benefits or Public Assistance)	House Value (mean housing unit value, median housing value)	Vehicular Access (% no car)	Other Physical Considerations (average temp erosion potential)
Citizenship (undocumented individuals, % citizens)	Literacy (literacy rate)	Housing Quality (poor quality homes)	Exposed Population (pop in floodplain)
Political Inclination (% conservative, % liberal)		Housing Type (% mobile homes)	
Special Needs/ Disabilities (% disabled)			
Health	**Risk Perception**	**Land Tenure**	
Potable Water access (e.g., % units with municipal water, % housing units with exempt wells)	Awareness (e.g., hazard awareness, access to info)	Renters (e.g., % renter occupied housing units, % rent burden)	
Access to Healthcare (ratio pop without health insurance)	Prior Experience (prior flood experience, adverse event experience)	Home/Landowners (% owner occupied properties, private landowners)	
Food Insecurity (caloric intake/ food	Risk Denial/	Tenure Length (length of tenure/	

insecurity)	Acceptance (perceived likelihood of damaging event)	water rights, residence over 4 yrs.)	
	Trust in Officials (perception of gov effectiveness)		
	Social Capital (neighborhood cohesion, # of social networks)		

Now that you have examined this table, let's briefly discuss your view of the included vulnerability indicators.

10) *Are any of those listed indictors useful for your workflows/ decision-making?*
    a. *Do you use them?*
    b. *Are any of indicators that you use missing from this set?*

11) *Do you find any unhelpful or unsuitable for your data needs?*
    a. *[If yes]* Why?

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Thank you. This is the end of our exercise today. Do you have any questions for us, or is there anything else that you would like to discuss?

Are there any other members of your organization or hazards network who may be interested in contributing to this activity? Please share in the chat box or email us later if you prefer.

Thank you so much for your participation today.