Collaborative Drought Planning Using Drought Scenario Exercises

Collaborative Drought Planning Using Scenario Exercises is an interactive website

that provides information and tools to help plan drought scenario-based exercises — structured, interactive activities designed for engaging decision-makers, stakeholders, planners, emergency managers, and others in the process of planning and managing a hypothetical drought.

Presenters

Deborah Bathke

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Education and Outreach Specialist, National Drought Mitigation Center, University of Nebraska – Lincoln





WEBINAR - MARCH 6, 2024 - 1:00 PM - 2:00 PM (ET)

Climbing the IAP2 Ladder with Marketing Hometown America

Marketing Hometown America (MHA) is a community-based people attraction program that incorporates IAP2 levels of public participation. IAP2 is an internationally recognized framework that helps practitioners determine the public's role and level of participation in any deliberative engagement process. The MHA curriculum has integrated various engagement tools and tactics that move decision-makers through the IAP2 levels, from inform to empower.



Presenters:

Lynn Adams

Field Specialist, Community Economic Development, Iowa State University Extension and Outreach

Dr. Cheryl Burkhart-Kriesel

Extension Specialist, Rural Prosperity Nebraska, Department of Agricultural Economics, University of Nebraska-Lincoln

Marilyn Schlake

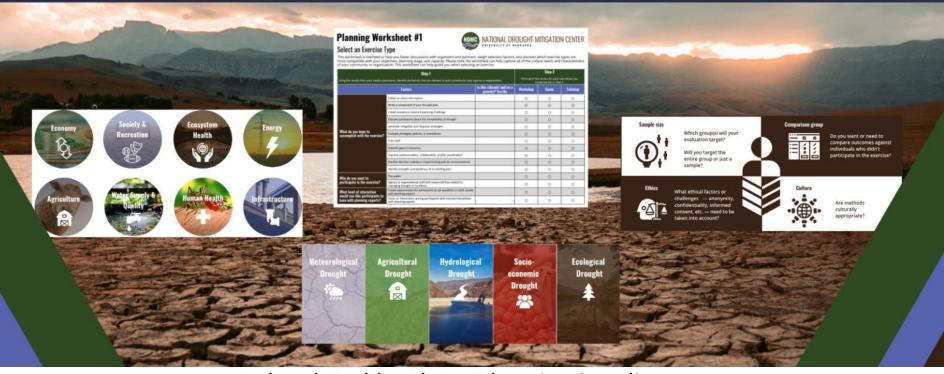
Extension Educator, Rural Prosperity Nebraska, Department of Agricultural Economics, University of Nebraska-Lincoln



WEBINAR - APRIL 29, 2024 - 3:00 PM - 4:00 PM (ET)

COLLABORATIVE DROUGHT PLANNING USING SCENARIO EXERCISES

Overview



Deborah Bathke, Ph.D., Education Coordinator Tonya Bernadt, M.S., Education and Outreach Specialist







Funding support provided by the North Central Region Water Network and North Central Regional Center for Rural Development











Funding support provided by the North Central Region Water Network and North Central Regional Center for Rural Development

NCRWN & NCRCRD Project

Interactive Extension guide on using scenario exercises for collaborative drought planning



NATIONAL DROUGHT
MITIGATION CENTER
UNIVERSITY OF NEBRASKA



Miranda Meehan

NDSU EXTENSION
SERVICE











Peter Tomlinson

K-STATE

Research and Extension



PURDUE EXTENSION

Project Team - Extension

Question #1

How familiar are you with drought-based scenario exercises?

What are scenario exercises?

Activities used to plan & manage a hypothetical disaster



Bridgelyn

Challenge: During a drought, the demand for water is higher than usual. As the drought progresses, the water demand increases and leads to a pump failure in one of your municipal wells, which leads to a reduction of water supply to some communities. The pump repair will take 3 days. Ensure that people will have enough drinking water during those days.

Option A Option B Decrease water demand Increase water supply Implement conservation practices and decrease Bring more water into the area affected by pump failure. demand on other pumps in the city. MONITORING MONITORING Groundwater Water use maps vulnerable maps populations PUBLIC INFORMATION AND WARNING TRANSPORTATION Prepared public Education on Water supply conservation information

messages

practices



Collaborative Drought Planning Using Scenario Exercises provides information and tools to help plan drought scenario-based exercises — structured, interactive activities designed for engaging decision-makers, stakeholders, planners, and emergency metagers in the process of planning and managing mitigation and response activities for a hypothetical drought.

The guide has been broken down into four sections, each with background information, tips, examples, and tools to help you understand roles that scenario-based exercises can play in reducing drought risk and to select and begin planning an exercise for your community or organization. Consider the information and approaches presented here as guidance based on research and experience rather than as a fixed set of steps and procedures. The goal is to present previously successful strategies you can employ to design the right exercise for your group.

Website sections



https://drought.unl.edu/scenarioguide

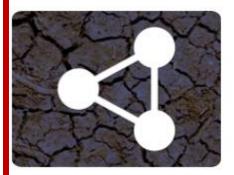
Website sections

Drought Planning



Introduces drought planning and the role that scenario-based exercises play in preparedness.

Types



Describes the three forms of exercises and presents information to aid selection.

Process



Lays the groundwork for designing a successful drought scenario-based exercise.

Resources



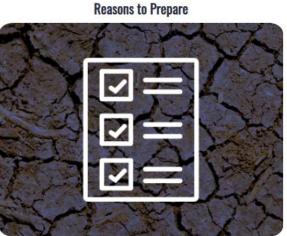
Provides resources including case studies, research findings, a glossary, and references.

DROUGHT PLANNING

Drought Planning

Whether they creep up on communities or take hold in a flash, droughts can lead to disastrous economic, environmental and human health consequences. The best way to prepare is to have a plan in place. The information presented in the sections below will help you learn more about drought, its potential effects on your community, and how you can use scenario planning and exercises to increase your community's preparedness.







Scenario exercises and their contribution to drought planning

Defining Drought

Key <u>poin</u>t Drought can mean different things to different people. Click on a perspective to learn more.



Agricultural Drought

Effects of rain/snow deficits on crop and forage growth

Hydrological Drought

Effects of rain/snow deficits on streamflow, lakes and reservoirs, and groundwater



DROUGHT PLANNING

Drought Planning

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Scenario exercises and their contribution to drought planning

Drought Impacts

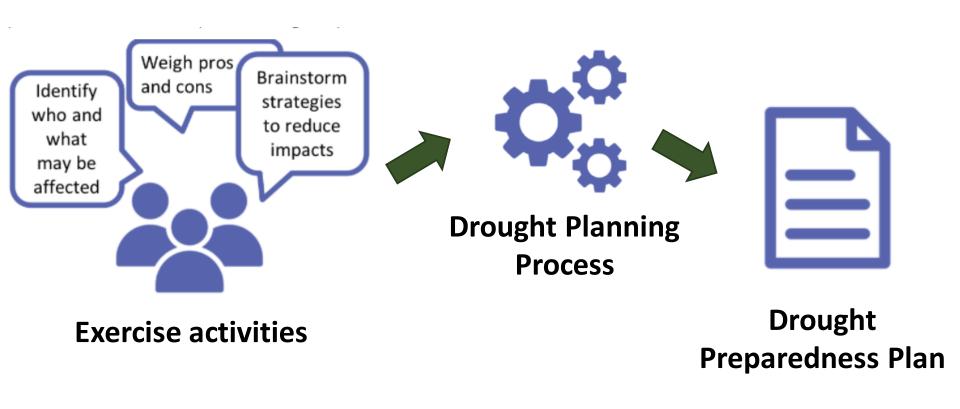
Click on a sector to see examples of recent drought impacts.



- Decreased air and water quality can cause respiratory issues, skin irritation, or gastrointestinal problems.
- Stagnant water can lead to increased West Nile case numbers.
- Financial burdens experienced during drought can escalate mental health issues.

Prepare for impacts

Scenario-based exercises offer opportunities to address and plan for drought impacts before they happen. Here's how:



Drought Planning Process

No matter where you are in the drought planning process, scenario-based exercises can make a contribution.

Scope, scale, and leadership

Start by building a leadership team that includes people who build community-wide involvement, coordinate plan development, and implement the plan in times of drought. The team will identify the developing plan's purpose, objectives, and geographic or political boundaries.



Engagement process

Involving the community can help you better understand the different ways that people think about drought and how it affects them.

Vulnerability assessment Information gathering

Gathering information heips create a picture of past

Exercise contribution

Can help you identify ways in which your community has been affected by past droughts

once a drought is taking place.



Monitoring and early warning

Monitoring climate and water resources helps you recognize drought, alert the community to developing conditions, and trigger response to help avoid a crisis.



Writing the plan

Putting the pieces together into a formal document allows people to see what can be expected during a drought event, eliminating uncertainty.



Plan evaluation and modification

After a drought, it's important to ask, "How well did our plan work?"

Updating your plan with lessons learned from past droughts helps keep it responsive to changing community needs and priorities.



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Overview

Drought Planning

Types

Process

Resources



TYPES

Types

Discussion-based drought scenario exercises offer an innovative way to actively engage your community or organization in conversations related to planning for and responding to drought. They can take the form of a workshop, tabletop exercise, or a game. Explore how these exercise types are used.

Workshops



Informal discussions with presentations and breakout groups.

Games



Friendly competition with teams and interactive learning.

Tabletop Exercises



Low-stress walk-through of plan implementation.

Compare Exercises



Compare key characteristics of all exercise types.

3 types of discussion-based exercises

Comparison chart

Workshops

Focus:

Gathering information, sharing or generating new knowledge, and building products.



Workshops



CASE STUDY: WORKSHOP

North Platte River Basin Drought THIRA

Kearney, Nebraska • April 2017







TYPE Workshop

DURATION

Sub-state, multi-sector

PARTICIPANTS

- Stakeholders and decision-makers in: natural resources energy, municipalities, emergency management, and recreation and tourism sectors
- Facilitators
- Coordinators

Developers

PARTICIPANT 40
COUNT

- PARTICIPANT Discussion group member

 ROLE Facilitators
 - Drought experts

MATERIALS .

- Hydrologic, climatic, and socioeconomic data
- Expert opinion
- Flipcharts

DEVELOPMENT TEAM

- University of Nebraska Public Policy Center
- National Drought Mitigation Center
- High Plains Regional Climate Center

APPROXIMATE COST

\$3,000 for catering, facilities, and staff travel. Excludes staff time for exercise development

FUNDING

NOAA Sectoral Applications Research Program (SARP)

SCENARIO

The scenario was set in the North Platte River Basin with participants engaging in group discussions focused on 16 of the 32 core capabilities identified in the National Preparedness Goal.

Participants could attend four groups, with each group focusing on a different core capability. Based on a scenario consisting of a 5-year drought with challenges such as wildfires, dust storms, West Nile, water supply and quality, decreased agricultural production, heatwaves, and power outages, participants identified desired preparedness, response, and recovery capabilities.

OBJECTIVES

- Determine the usefulness of the Department of Homeland Security's THIRA process for drought planning
- Educate participants on the multi-sector impacts
 of drought
- Identify drought preparedness capabilities and required resources
- Increase collaboration in the planning process



Games

Focus:

Collective learning in a friendly, competitive environment.



Games



CASE STUDY: GAME

Iowa Multi-hazard Tournament

Cedar Rapids, Iowa • September 2016



TYPE Game DURATION 1 day

SCOPE

Sub-state, multi-sector

PARTICIPANTS

Representatives of:

- · Federal, state, and local governments
- Non-governmental organizations
- Farmers
- Academics

60 PARTICIPANT COUNT

PARTICIPANT ROLE

- Multi-sector team player
- · Team facilitator
- Announcer
- Referee

- MATERIALS . Hydrologic, climatic, and drought impact data
 - Hydrologic model
 - Web based decision-support
 - Expert knowledge
 - Play book
 - Computers and monitors

DEVELOPMENT TEAM

- U.S. Army Corps of Engineers Institute for Water Resources and **Rock Island District**
- Iowa State University, University of Iowa, University of Nebraska, Lincoln
- Natural Resources Conservation Service
- USDA, NOAA, USGS
- The City of Cedar Rapids
- UNESCO HELP
- The Nature Conservancy
- Sandia Labs

\$200,000

APPROXIMATE COST

> FUNDING SOURCE

U.S. Army Corps of Engineers of City of Cedar Rapids, IA

SCENARIO

Participants worked within teams to select appropriate adaptation options for the scenarios under the constraints of time, budgets, state and municipal regulations, and technical aspects.

Game challenges took place over four rounds and included: (1) the selection of water management strategies and adaptation options for a 20-year planning period for a (2) flood, (3) drought, and (4) climate change. The scenario was set in the Cedar River Basin and was based upon hydrologic modeling and climate information.

OBJECTIVES

- Increase the participants' awareness of policies, strategies, and resources to reduce drought, flood, and water quality risks
- Evaluate the impacts of mitigation strategies for different climate conditions
- Build relationships and potential partnerships between stakeholders



Tabletop exercises

Focus:

Low stress walk through of an existing drought plan



Tabletop exercises



ACF River Basin Drought Tabletop Exercise

"We're all in this together!"

roughts are not discrete events, making it challenging to determine when drought starts and when it ends. The Apalachicola, Chattahoochee and Flint (ACF) Basin covers 19,600 square miles across Alabama, Florida, and Georgia and is home to nearly 6.8 million people. Water management in the basin is critical in both wet and dry years however, water stress becomes much more prevalent in the ACF during times of drought. The availability of ACF water resources can be limited during times of drought, and a variety of economic and environmental impacts can result. Water management in the ACF is a shared responsibility between federal, state and local governments and ultimately every entity that consumes or uses water in the ACF.

To facilitate interstate and interagency interactions on ways to address drought, the ACF Stakeholders (ACFS) and National Drought Mitigation Center hosted a drought tabletop exercise on March 1, 2023 in Eufaula, Alabama. This exercise brought together sixty participants from federal, sate and local governments and utilities gathered to have an open dialogue about how they respond to different stages of drought. The exchange encouraged the sharing of ideas and opened the door to future collaborations in drought management. Most importantly, the workshop provided an opportunity to bring together stakeholders from across the region to work toward a more resilient future from the ACF Basin.

Exercise objectives were to:

- Increase awareness of roles and responsibilities for drought planning and response
- 2. Increase awareness of drought challenges and resources
- Increase collaboration for drought planning, mitigation and response



"I learned that there is already a

communication and coordination

50%

tremendous amount of

24%

that is happening at multip

levels. It was very inspiring





1







Workshop	Games	Tabletop Exercise
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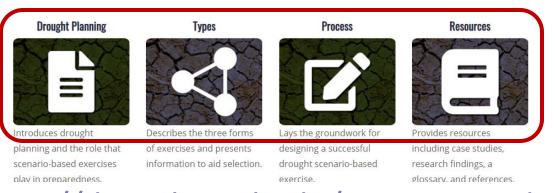
Needs	 Write a plan component Education or training Knowledge sharing Build consensus Improve collaboration and communication Generate mitigation and response strategies Identify resource needs 	 Engage a wide variety of individuals in the planning process Education Knowledge sharing Build consensus Improve collaboration and communication Explore and evaluate mitigation and response strategies Practice resource and/or budget allocation 	 Promote plan familiarity Training Information sharing Practice group problem solving and decision-making Evaluate mitigation and response strategies Identify gaps in resource or staff allocation
Format	Informal discussion with presentations and breakout groups	Friendly competition with teams and interactive learning	Low-stress walk through of plan implementation
Participants	Single- or multi-sector Stakeholder or agency	Multi-sector stakeholder	Anyone with a policy, planning or response role
Time	4 hours to multiple days	2–8 hours	1–4 hours
Planning stage	Developing or existing plan	Developing or existing plan	Existing plan



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Website sections



https://drought.unl.edu/scenarioguide



Overview

EXERCISE DEVELOPMENT PROCESS

Process

You'll need to consider a wide range of aspects in the design and development of the scenario-based exercise to ensure that it produces the results, findings, or changes that you hope to achieve. To help approach this complex task, this section breaks down the process into five phases, each with information, tools, and resources to assist you with this process.

Foundation



Lay the groundwork for your exercise by assessing your needs and capabilities, establishing partnerships, and defining the scope and objectives.

Impact



Get the most out of your exercise by assessing what went well and what didn't, planning your next steps, and help others by sharing lessons learned.

Planning



Create a roadmap for design by selecting an exercise type, estimating osts, gaining support, and building work teams.

Design



Transform your plans into the products and materials that will be used to deliver the exercise and assess its effectiveness.

Implementation

Process



Ensure the exercise goes smoothly by holding a preevent orientation, managing logistics, setting expectations, and collecting data. Consider your needs

Assess your capacity

Establish a development team

Define the scope

Set goals and objectives

Consider Your Needs

The needs assessment is arguably the most important step since it builds the foundation for your entire drought scenario-based exercise. This assessment will help you define the problems, establish the reasons to conduct an exercise, and identify the challenges, functions, or tasks that you will address during the exercise.

Where are we?

- No drought plan
- Lack of coordination among agencies
- Insufficient response actions
- Conflict among users during water shortages



Where do we want to be?

- Up-to-date drought plan
- System to facilitate coordination among agencies
- Strategies to help lessen negative drought impacts
 - Buy-in among water users



Foundation Worksheet #1: Consider Your Needs (pdf)

Questions #3

What are your community's main drought concerns?

Assess your capacity

Establish a development team Define the scope

Set goals and objectives

Assess your capacity

Planning, developing, delivering, and evaluating a drought scenario-based exercise takes a commitment of time and resources. Capacity can affect complexity & potential outcomes.

Example capacities for developing, convening, and evaluating a drought scenario-based exercise

Financial



can commit, leverage, or raise

Knowledge & Skills



Staff expertise, competence, and experience

Time



Preparation time and staff availability

Culture & Climate



Values, attitudes, and relationships

Facility & Materials



Concrete resources

Foundation Worksheet #2: Assess Your Capacity (pdf)





Overview

Drought Planning

Types

Process

Resources

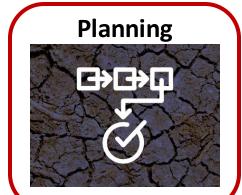


EXERCISE DEVELOPMENT PROCESS

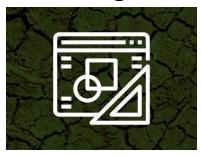
Process

Foundation





Design



Implementation



Impact



Select an exercise type

There's no single, "best" exercise.

Selecting the "right" exercise involves determining what you want, assessing what you have, and balancing the two

Want

Have

Financial budget

Knowledge & skills

Available time

Goals & objectives

Scope

Culture & climate

Materials

Planning Worksheet #1: Select an Exercise Type

Planning Worksheet #1



Select an Exercise Type

This worksheet is intended to help you foster discussions with organizers and partners, weigh selection factors, and discover which exercise types are most compatible with your objectives, planning stage, and capacity. Please note: No worksheet can fully capture all of the unique needs and characteristics of your community or organization. This worksheet can help guide you when selecting an exercise.

Step 1 Using the results from your needs assessment, identify the factors that are relevant to and a priority for your agency or organization.			Step 2 Is this type of exercise compatible with the relevant factor? Circle YES responses and cross out NO responses.		
	Factors	Is this relevant and/or a priority? Yes/No	Workshop	Game	Tabletop
	Collect or share information		YES	YES	NO
	Write a component of your drought plan		YES	NO	NO
	Create consensus around a planning challenge		YES	YES	NO
	Educate participants about the complexities of drought		YES	YES	YES
	Generate mitigation and response strategies		YES	YES	NO
What do you hope to accomplish with the exercise?	Evaluate strategies, policies, or procedures		NO	YES	YES
iooomphan man aro oxoroiso:	Train staff		YES	NO	YES
	Discover gaps in resources		YES	NO	YES
	Improve communication, collaboration, and/or coordination		YES	YES	YES
	Practice decision-making or implementing policies and procedures		NO	YES	YES
	Identify strengths and weakness of an existing plan		NO	NO	YES
Who do you want to	The public		YES	YES	NO
participate in the exercise?	Agency or organizational staff with responsibilities related to managing drought or its effects		NO	NO	YES
What level of interaction	Create opportunities for participants to ask questions or work closely with planning experts		YES	NO	YES
would you like participants to have with planning experts?	Focus on interactions among participants with minimal interactions with planning experts		NO	YES	NO

Select an exercise type

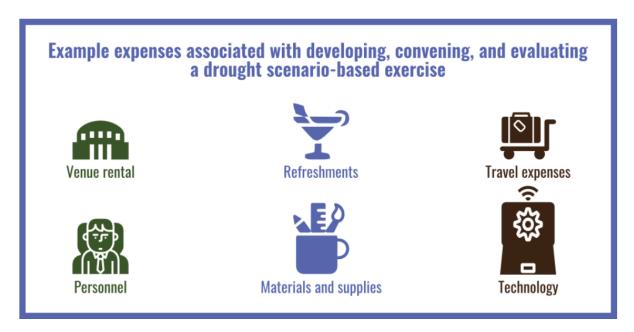
Estimate costs

Gain support

Identify working groups

Estimate costs

Costs vary depending on your capacity, the type of exercise and its complexity, your desired outcomes, and the technology and materials used



Planning Worksheet #2: Estimate Costs



Identify Working Groups

People who create the products needed to design, deliver, and assess the impact of the exercise.



Planning Worksheet #4: Identify Working Groups



Overview

Drought Planning

Types

Process

EXERCISE DEVELOPMENT PROCESS

Process

Foundation



Planning





Implementation



Impact



Organize the logistics

Build the scenario

Write the evaluation plan

Outline the facilitation methods

Build the scenario

Practical details that help ensure you exercise runs smoothly

Types	Scripted	Diagram/storyboard	Animation/simulation
Definition	A text that describes the scenario, providing basic information about a drought and its effects.	A sequence of diagrams or other images that supplement the narrative.	A computer-based display of the behavior of multiple variables during a drought.

Collect background information

Outline the narrative

Identify events (challenges)

Question	Answer
When did your most recent drought occur? What was its severity and duration?	
What is your drought of record? That is, what is the worst drought, in terms of severity and duration that has been recorded in climate or hydrologic data?	
What were the priority impacts that you addressed in Foundation Worksheet #4: Define the Soope" in your research, did you find any other impacts that surprised you or that were particularly difficult to manage?	
What did your exploration of related information reveal that could help you focus the scenario?	

 (ask 2: Design the scenario components. a. Outline the narrative. An easy way to according the forget key information is by writing down ships.) 	complish this and ensure that you do
Question	Answer
What is the length and severity of the drought that you want to depict in the scenario?	Allanu
How fast does the drought develop?	
Where does the drought take place?	
In what season does the drought begin, peak, end?	
What are the relevant weather and hydrologic conditions?	
Who and what does the drought affect?	
How will participants find out about the drought?	

and C	and Objectives). Event Description Corresponding objective action				
Event #	What is the situation or problem that you want participants to address?	What objective does this event help you achieve?	What will participants to respond to the even		
1					
2					
3					
4					
5					

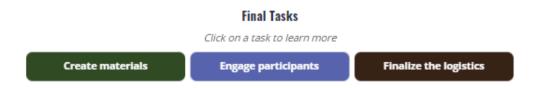
Build the scenario

Following these steps can help ensure your exercise goes smoothly. Click on a step to learn more.



Pre-event preparations

In the final two weeks leading up to the exercise, a number of tasks need to be completed to make sure everything is ready to go. Some tasks may be completed much earlier, depending on your overall timeline.



Implementation

Now that you've held your exercise, it's time to evaluate it and reflect on the experience; identify, prioritize, and plan next steps; and summarize and share findings. Click on a step to learn more.



Finish the evaluation

Start by reviewing your evaluation plan to remind yourself what you hoped to learn. Next, prepare, analyze, and interpret your data so that you are able use your results.

Tasks for finishing the evaluation

Click on a task to learn more

Prepare Analyze Interpret

Impact

Question #4

What type of exercise would you be interested in learning more about?



Overview

Drought Planning

Types

Resources

Process





RESOURCES

Resources

This section offers additional material to build your knowledge about drought planning and scenario exercises. Explore past exercises, case studies, a glossary of terms and a list of references used to create this guide.

Past Events



Worksheets



Glossary



References



Thank you!

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