



Climate Change Summit

Overview

Climate Change Summit is a 90-minute town hall-style game where players work together to solve a local climate issue. Our 2019 topic—dam renovation—divides players into characters representing six stakeholder groups, then helps them review data, discuss priorities, and make the best possible decision about what to do with the town’s century-old dam. Players can opt to leave the failing dam as it is, tear it down, restore it to its former glory, or remodel it to be environmentally sustainable.

Learning Goals

By role-playing townspeople faced with decisions about an aging dam in their community, participants in the science outreach activity *Climate Change Summit* immerse themselves in constructive, meaningful conversation about water resource issues and planning for the effects of climate change.

Materials

- Stakeholder characters
- Data
- Budget
- Breakout group signs
- Choice cards

Set-up/Interpreter Guide: Please use this guide to assist in the training of facilitators and volunteers.

Thanks so much for agreeing to be part of the Climate Change Summit project. This is a great way for community members to:

1. Understand how climate change impacts their community.
2. Use and evaluate data to justify an argument.
3. Appreciate the nuance in arguments about climate change.

As such, your goal is to facilitate discussion. After a brief introduction, everyone who has been assigned to your stakeholder position will meet together and strategize. Each participant will have slightly different data to support their position, and will have slightly different goals and concerns.

Here are some tips for effective facilitation:

1. Review your data cards and information sheet ahead of time. Some of the data are biased, some are irrelevant, and some may be perfectly applicable to your community.
2. Be ready to say you don't know. They may ask questions about what they want or about the community that is not available. If they ask questions about their motivations, feel free to encourage them to figure it out for themselves. If they ask specific questions about the community that are not available on the information sheet, you can say that you unfortunately don't know.
3. Make sure everyone gets a chance to share. Groups may be dominated by a few individuals, but this means that not everyone's data may be shared.

Procedure

1. Assign each participant a stakeholder group and character.
2. Go around and have every character introduce themselves (if you groups are larger than 6 people, you may have two of some characters).
3. Ask if participants have any questions about the background or the goals.
4. Have participants go around and share their data individually.
5. Help participants decide what data is important, and what data to disregard (and why).
6. Figure out what positions your characters should take (they may not be homogenous, not all farmers have to support the same outcome).
7. Decide who is going to talk to report back to the group and help prepare talking points.
8. If your group is working well together, it is not necessary for you to dominate the conversation. Your goal is to step in when needed and step out when not.

After this, your group will report back to the full group summarizing their positions. Following this, we will group stakeholders into pairs, with each pair holding a different opinion. During this portion, you will want to float around a section of the room and make sure that people are having good conversations.

Definition of Success

Success is defined when participants can: understand how climate change impacts their community; use and evaluate data to justify an argument; and appreciate the nuance in arguments about climate change.

Modifications and Guiding Questions

Online Webinar

Partnering with the Iowa Department of Natural Resources and the University of Iowa, NCSE hosted three webinars as a way to adapt and create accessible outreach. This modification guide can be found on page 5 of this document.

Further Resources

- The Dam Facts (This can be found on page 4 of this document).
- *Flooded with Evidence* [article](#) by Kate Carter and Emma Doctors

NGSS Standards

[K-ESS3-3 Earth and Human Activity](#)

Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

[K-2-ETS1-1 Engineering Design](#)

Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

[3-ESS3-1 Earth and Human Activity](#)

Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.

[3-5-ETS1-1 Engineering Design](#)

Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

[HS-LS2-7 Ecosystems: Interactions, Energy, and Dynamics](#)

Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

[HS-ESS3-1 Earth and Human Activity](#)

Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

The Dam Facts

1. Orinda is a 17,000 person town located along the San Pablo Creek. It is downstream of the large metropolitan area, Richmond, and upstream of several smaller communities. Approximately 30% of the residents in the county identify that they engage in agriculture, though this is not exclusive of other trades. 20% of the community members commute to Richmond for work. 5.7% of the town (1,140) identified their place of employment as affiliated with San Pablo dam, either working at the hydroelectric power plant or in recreation at the San Pablo Reservoir that the dam creates.
2. San Pablo Reservoir was erected as a multipurpose grant in 1937, by an 800,000 grant funded by the US government and fulfilled by the Army Corps of Engineers. It is primarily a concrete dam, though it has earthen and gravel fixtures. It has a normal water surface of 18 acres, and a maximum capacity of 43,750 acre-feet. San Pablo Reservoir is publicly owned, but includes a privately owned power plant, Orinda Power. In addition to serving as a hydroelectric dam, the dam provides water for agriculture, prevents floods, and provides the San Pablo Reservoir for recreation.
3. On the public lands, the San Pablo reservoir provides recreation activities including fishing, boating, and public campgrounds. The reservoir has over 45,000 visitors annually. Of unique visitors, approximately 40% reside within the county, 35% are located within a surrounding county and the additional 25% are located further away.
4. Orinda power has provided more than 85% of the community's power, in its 80 years of operation. While there has been little change in the cost to produce hydroelectric power, disrepair of the dam's structures have decreased efficiency by 10%. Based on models from other communities, these decreases in efficiency are likely to rise over the next 20 years. Engineers estimate failure is likely within 50 years, but currently assess failure rate to be low.
5. There are currently no studies on the environmental impact of our dam on the downstream communities or the local fish population. However, there are historical photos that suggest certain migratory fish (including salmon and trout) were much more populous before the dam was built than after. As a standard agreement with all dams across the state, 7.5% of the dam's earnings are paid for wildlife restoration efforts, a cost that gets passed onto consumers.
6. Since the reservoir is within 5 miles of the city center, city businesses see a lot of revenue from recreation and fishing (though no study has ascertained the exact amount spent). However, the 150 acres of land that house the dam, reservoir, and surrounding park are lands where no houses exist. The median cost of a house with river access on the San Pablo river in Orinda is \$1,711,680, significantly more than lots of the same size without river views in the county (\$1,219,640). If the dam were removed, private developers estimate that they could build an additional 30 properties surrounding the old reservoir. This would inject an additional 7.5 million in home value in the community, including an increase in 187,500 in property taxes.

Modification | Online Webinar

Volunteer Training

1. Make sure you have a number of volunteers equal to $(n/8)+2$, where n is the maximum number of participants. You will need volunteers to facilitate a group of up to 8 people and two additional volunteers to solve problems and moderate comments and entry/exits.
2. Run at least one session with volunteers through your webinar software of choice, to make sure they are familiar with all of your settings (breakout rooms, polls, comment moderations, asking questions).
3. Make sure that, during the session, volunteers in breakout rooms have a way to reach the main facilitators to ask questions or solve problems. This can either be through texting or through a shared chat outside of the platform.

Initial Meeting Preparation

4. Plan to open the activity approximately 15 minutes before scheduled start time. During this time, have a facilitator playing “Climate Change Trivia” with the crowd, using the platform’s polling function.
5. As people log in, make sure they are given their character and any additional information they did that is specific to them.
6. During the initial 5 minutes, make sure everyone is aware of what’s happening. Have volunteers on hand to answer questions.

Run of Show

7. Give the same opening presentation, but add in a few modifications for interactivity (See suggestions in powerpoint)
8. Move participants into breakout rooms to discuss.
9. Volunteers representing each stakeholder should nominate one individual to present results to the group outside of the breakout room and should let the facilitator know.
10. Before designated stakeholders present, ask participants to vote on one of the proposals through one of the polling functions. They are allowed to change their vote throughout the presentations.
11. Allow participants to ask questions by raising their hands during the meeting.
12. After all stakeholder groups have presented, assign people into smaller groups (3-4 people) with individuals that don’t share their viewpoint. Give them approximately 10 minutes to debate within their viewpoint.
13. Ask people to raise their hand if they changed their mind and to leave comments about why.
14. Final vote - Done through polling!
15. Stream table demonstration
16. Thank the participants and volunteers, then ask them to take an exit survey.