FLOODING AND CLIMATE CHANGE RISKS IN NORTHAM

Teaching Notes

Climate change threatens infrastructure, other components of the built environment, and coastal ecosystems. While there is overwhelming evidence that the climate is changing and sea levels are rising, exactly how climate change's effects will materialize in any particular place remains unclear. Adaptation efforts will be necessary to protect human development and ecosystems, but are likely to be complicated by the fact that stakeholders vary in their level of concern about whether and to what extent climate change is an issue that must be addressed now. Additionally, in many places, there is strong disagreement about what, if anything, government needs to do to manage climate change risks. Despite these challenges, adaptation decisions will have to be made, and it is increasingly important that cities and towns take the best possible scientific projections into account as they make collective judgments everyday about what infrastructure to build, what development to allow, and what land conservation efforts should be given priority.

This seven-party multi-issue negotiation exercise introduces a facilitated approach to collaborative risk management. It illustrates the value of engaging key stakeholders in joint decision-making in light of scientific uncertainty. Players must consider the impact of current land-use decisions and infrastructure investments on their community's wellbeing and safety in the face of climate change risks.

Scenario

The city of Northam has a flooding problem. Flooding in the city originates from two sources: 1) runoff from buildings and roads (i.e., stormwater runoff), and 2) overflow from two tidal rivers that run through the heart of the city. In the past few years, flooding from both sources has led to costly damage and loss of business.

Furthermore, the threat of flooding in Northam appears to be getting worse. The recent storm is the second "100-year storm" (i.e., a storm that is so severe it has a probability of happening once every 100 years) that Northam has experienced in the last five years. Not only have these storms increased the frequency of river flooding, they have also caused sewer collection systems to occasionally overflow onto streets and into storm drains.

In response to public concern, the Planning Board decided to approach its Master Plan review process differently than it has in the past. The Planning Director appointed four advisory committees to discuss some of the city's regulations and services that could be impacted by climate change, and to make recommendations about what Northam should do going forward. The four Climate Change Advisory Committees (CCACs) are dedicated to:

- Subdivision regulations (specifically, stormwater management)
- Emergency services
- Zoning in the floodplain
- Drinking water

The Planning Board has asked each of these groups to meet weekly for three consecutive weeks to produce recommendations for changes to existing city policies. The CCAC on Subdivision Regulations, which is the first of the four groups to convene, is meeting today. It includes city officials and community leaders, and its purpose is to generate recommendations about how flood risks in Northam can be managed now and into the future.

Teaching Objectives and Key Lessons

This game is designed to achieve the following objectives:

- Increase awareness and concern about potential climate change risks and obstacles to addressing them as a community.
- Teach collaborative decision-making methods that can help at-risk communities move forward with planning and policy-making despite climate uncertainty.
- Demonstrate the importance of using scientific climate forecasts and credible risk assessments in current everyday decision-making.

The role-play simulation aims to convey the following key points:

- Climate change adaptation poses difficult planning choices, but there are actions cities and towns can take now to protect themselves that will be beneficial regardless of how severe climate change effects turn out to be.
- Development, conservation, and infrastructure investment decisions made today will continue to affect communities far into the future. Short-term actions that do not take long-term climate change risks into account could prove extremely costly in the long run.
- There are ways of handling climate change risks that meet multiple municipal goals simultaneously, and do not require significant extra investment. "No-regrets actions" that take climate change projections into account can help to implement short-term planning, zoning, infrastructure and land-use decisions that will also make sense in the long term.
- A community-wide approach to managing the collective risks associated with climate change can create opportunities to address other issues while reducing vulnerability and enhancing community resilience.
- Communities must assess their vulnerabilities and decide which adaptation strategies are

most appropriate.
- Stakeholders may have conflicting interests that shape their views about which public policy choices should be made. By working collaboratively and taking science into account, groups can find creative solutions that meet the interests of diverse stakeholders.
- At-risk towns and cities will have to consider how the financial responsibility for reducing climate risks will be distributed and whose responsibility it is to manage certain climate change impacts.

Logistics

Time required:

- 30 minutes for players to read and review their General and Confidential Instructions
- 60-75 minutes for players to engage in the role-play simulation
- 30 minutes (minimum) for follow- up debriefing

The game requires a minimum of seven players. For any given training event or class, multiple groups of seven may play the game at the same time, preferably in separate rooms or spaced far enough apart to avoid overhearing each other's conversations. Some roles can be doubled up at a single table to incorporate extra players.

Introducing the exercise
Players should be informed in advance that the role-play exercise explores how numerous groups in a coastal community might grapple with climate change risks. They should also be informed that the scenario with which they will be working is intended to help them reflect on their own situation. It is not aimed at promoting any particular perspective on how adaptation ought to proceed.

Players will have personal opinions on the issues that will come up, but they should stay true to the roles they have been assigned. Their Confidential Instructions will help them do this. The debriefing at the end of the role-play will provide an opportunity for everyone to step out of character and talk about their perspectives, opinions, and the lessons they may be able to take from the game and apply in their own situation.

Setting up
Players gather in groups of seven, with each group around a separate table. As mentioned above, many groups can play at the same time. If you do not have an even multiple of seven, extra players should be assigned to double-up (i.e., play the same role together) in the role of the Conservation Commission, Chamber of Commerce, or Resident.

If possible, the person playing the facilitator role for each group should be provided with a whiteboard, chalkboard, or flip chart so they can keep track of their group's ideas and decisions.

As the game manager, you should circulate through the room during game play to make sure all the groups have what they need and are proceeding smoothly. Additionally, listening in and having a sense of what is going on at the game tables will make it easier for you to lead the debriefing.

Preparation
All players should receive a copy of the General Instructions. These can be distributed ahead of time. The General Instructions describe the scenario and the decisions the group will have to make. The General Instructions also provide some scientific information about climate change risks in easy-to-understand language.

Each player should also receive individual Confidential Instructions. These should *not* be distributed ahead of time. The Confidential Instructions describe each role, as well as the role's concerns and priorities. When distributing the Confidential Instructions, remind players *not to show* these instructions to other players.

Everyone should be given at least 30 minutes to familiarize themselves with their instructions and to prepare for the simulation. If two players are sharing the same role at a given table, they may need an additional 5-10 minutes to caucus and develop a joint strategy.

Again, it is critical that all seven roles at every table be filled.

The facilitator's role
The game manager should be aware of the purpose and directions for the facilitator role, which are explained in his or her Confidential Instructions. Although all other roles should be assigned randomly, the game manager should ask if anyone is willing to play the facilitator role; not everyone is comfortable with this responsibility, and although it is not mandatory, prior experience with group decision-making and facilitation is especially helpful for playing this role.

The facilitator should start the discussion in each group. The facilitator's Confidential Instructions outline how to present the agenda. **It is essential that the facilitator ensure that the group considers the attached climate change projections.**

Simulation process
The simulation will require at least 60 minutes; 75 minutes is preferable. Before beginning, make sure all the parties understand their instructions and the game logistics. Emphasize the following:

- Once the negotiation begins, players should remain in their roles until the end of the game.
- There is a designated facilitator who will manage each group.
- Players should try to come to consensus, which in this game will mean that all of the six voting members support—or at least don't oppose—the "deal" that is worked out.
- All parties must remain faithful to their Confidential Instructions. No player can agree to an outcome that includes provisions identified as unacceptable in their Confidential Instructions. Players are allowed to "fill in the blanks" i.e., to improvise when no specific

guidelines are provided. But they must take stands consistent with the priorities indicated in their Confidential Instructions.
- Time is limited so all parties should make their points as clearly and efficiently possible. No one should be allowed to monopolize the conversation in their group.
- Players should not interact with players from other groups during the exercise. Comparisons of the decisions reached at each table should be made only during the debriefing.
- Modifying policy options or creating new options is entirely permissible and encouraged. However, players must not invent options that they know are unrealistic in the real world.

When all players have read their instructions and are prepared to begin, the groups should convene. If there are multiple groups, they should meet in separate rooms or at separate tables. If roles are doubled up, people playing the same role should sit next to each other.

Once the simulation begins, the facilitator should start the discussion by explaining that he or she will keep track of time and move the meeting along. The facilitator should then remind the Advisory Committee of the ground rules they agreed to when they started their sessions. He or she should then ask everyone to introduce themselves and to explain their primary interests and concerns rather than their specific positions on the issues (about 30-45 seconds each).

The players will then have the rest of the allotted time (60-75 minutes total) to reach agreements. The game manager should stop all groups after the allotted time, regardless of whether they have reached agreement. All players should then reconvene as one large group to begin the debriefing.

Possible Agreements

The following are examples of agreements that are possible given the restrictions imposed by the Confidential Instructions. Many other agreements are also possible.

- The group could agree to a package that includes 1C, 2A, and 3C, with the following contingencies: the creation of an incentive program to encourage low impact development practices in new development; a training program for city staff to ensure they can implement the new design standards; and the creation of a city program to raise revenue to pay for the cost of building infrastructure for the "worst case scenario."
- The group could agree to a package that includes 1B, 2A, and 3C, with the contingency that an incentive program is put in place to encourage low impact development practices in new development.

Debriefing

The debriefing is an important part of the exercise that allows players to discuss possible "take-aways" and link them to their real-life situations. Following the completion of the simulation, all players should be gathered for one large group debriefing.

To start the debriefing, the game manager should have the facilitator from each group give a very brief summary of what agreement, if any, was reached. If no agreement was reached, have the facilitator and other group members try to explain why.

Then, the game manager should ask the following questions—or a similar set of questions—to promote discussion about group decision-making and climate change adaptation.

1. How did it feel to take on a role or perspective that is different from your own?
2. How did this exercise affect your understanding of the climate change risks facing your community?
3. Did this exercise give you any ideas about how your community might work together to reduce its vulnerability to climate change risks?
4. Should your community undertake a collaborative process for preparing for climate change impacts? What might such a process look like? Who would need to be involved?
5. What do you think are the most interesting take-aways from this experience?

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