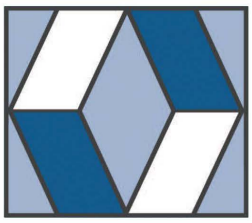

E-PARCC
COLLABORATIVE GOVERNANCE INITIATIVE
Syracuse University
Maxwell School of Citizenship and Public Affairs
Program for the Advancement of Research on Conflict and Collaboration

Fracked: Uncertainties in Negotiated Rule Making
TEACHING NOTE

Summary

This simulation exercise draws attention to the influence that information uncertainty and changing information shapes multi-actor negotiation processes, particularly when the information is scientific and pertains to biophysical environmental quality. By inserting data from an environmental study midway through a negotiated rule making process for regulating hydraulic fracturing activity, the simulation exposes students to the dynamic nature of negotiations when they occur amongst high levels of uncertainty regarding problem information and resulting impacts on power and trust. Instructors using the simulation will have the opportunity to teach about negotiated rulemaking, multi-actor interest-based negotiation, hydraulic fracturing, and public policy making under uncertainty.

This simulation was a winner in E-PARCC's 2014-15 "Collaborative Public Management, Collaborative Governance, and Collaborative Problem Solving" teaching case and simulation competition. It was double-blind peer reviewed by a committee of academics and practitioners. It was written by Rob Alexander, Natalie Abel, and Matthew Williams of James Madison University. This simulation is intended for classroom discussion and is not intended to suggest either effective or ineffective handling of the situation depicted. It is brought to you by E-PARCC, part of the Syracuse University Maxwell School's Collaborative Governance Initiative, a subset of the Program for the Advancement of Research on Conflict and Collaboration (PARCC).

Simulation Overview

Implementation Timeframe	Student prep = 2 hours Simulation implementation = 2 hours minimum
# of Unique Roles	From 9 to 20
Skills Required	Interest-Based Negotiation, Facilitation
Topics Covered	Environmental Policy Tools, Stakeholder Interests, Negotiated Rulemaking, Environmental Science

Description

This simulation exercise draws attention to the influence that information uncertainty and changing information shapes multi-actor negotiation processes, particularly when the information is scientific and pertains to biophysical environmental quality. Termed 'substantive uncertainty' by Koppenjan and Klijn (2004)[1], the lack of information about a complex problem, such as potential groundwater contamination from hydraulic fracturing processes, increases the risk of inefficient and ineffective decision-making and impacts relative power dynamics within the negotiation process.

Pre-Simulation (1 hour instructor prep, 2 hours student prep)

1 hour

1. Instructors should review tips and strategies for facilitating role-play simulations to ensure a quality learning experience. If you are new to facilitation or feel that your facilitation skills need development, see the footnote for useful resources[2]. Note that teaching with a role play and acting as the facilitator of a negotiation are two very different roles that entail two very different skill sets. We strongly encourage that, if you will act in the role of the simulation facilitator that you read this background information and stay true to the primary principles of neutral facilitation. This will allow your students to develop alternatives without your undue influence.
2. Generate a complete set of processing questions (see Post-Simulation Questions on page 4). Read through the entire simulation and its related roles and identify key areas that fit your learning objectives. Then, use the starter questions below as a basis for developing a more comprehensive list tailored to your class.

1

[2] Tips for facilitating role play exercises may be found in various places including https://www.dhs.state.or.us/caf/ssp_cm/documents/tipstools/tip_sheets/facilitating_role_play.pdf, http://serc.carleton.edu/introgeo/roleplaying/howto.html, and in the facilitation section of http://wagner.nyu.edu/files/leadership/TrainingForTrainers.pdf.

	2 hours	3. Assign roles to students. Note that the simulation may be implemented utilizing teams of negotiators for each stakeholder that rotate who is 'at the table'. It is common practice to require the group member/members not at the table at that moment to only communicate with their representative though text or handwritten notes. Similarly, the simulation could be implemented as a fishbowl where students without roles may be assigned as observers. 4. Select the neutral facilitators and determine if you or a student will serve. It is recommended that two facilitators be used – one to sit at the table with negotiators to facilitate and the other to serve as a note taker on the wall so that participants may view the information and proposals as they become revealed. 5. Distribute **Background Information** as well as **Confidential Role Sheets**. 6. Have students complete the **Negotiation Preparation** worksheet (end of document).
During Simulation	2 - 4 hours	7. Set context for negotiation. Review shared background information by highlighting the three issues to be negotiated and the default alternative to a negotiated solution. 8. Declare ground rules. Common rules include speaking one at a time, listening openly, and acting authentically (http://serc.carleton.edu/introgeo/roleplaying/rules.html). It is also suggested that instructors establish process rules. The ground rules suggested in this simulation include: a. Neutral facilitators exist to keep track of time, record the negotiation on flip charts visible to all, and refocus negotiations if necessary. b. Required 3 minute breaks will occur every 20 minutes to allow informal conversations as well as rotation of negotiators for each stakeholder group. c. Any group may call one 5 minute caucus during a negotiation session for internal or small group discussion. d. An agreement is reached when all negotiators sign a written out copy of the agreement. 9. Commence negotiation. 10. Insert new scientific data (see Suggestions for Inserting New Information on page 5). Once tentative agreements have formed for at least one or two of the issues but prior to the group achieving near consensus on all of the issues, insert "new information" by announcing conclusion of the health department study and distributing the new table of data. You will have to consider the consequences of inserting the new data too early or too late in the negotiation. The new data may also be used to infuse new energy into the negotiation.

Post-Simulation	0.5 – 1 hour	11. Facilitate discussion about simulation experience. Consider the following questions for starting this discussion. Develop *a. Questions about path dependent processes* **i. What happened? Describe the evolution of events, noting key conflicts as well as decision points.** *b. Questions about negotiation strategies* **i. From your stakeholder perspective, did you meet your objectives? Why or why not?** **ii. Who did you anticipate as collaborators and opponents pre-negotiation? Did these relationships hold true? Why or why not?** **iii. To what extent did you follow your pre-negotiation strategies? Were they successful? Why or why not?** *c. Questions about the role of information/uncertainty* **i. What information did you lack in order to be able to more effectively achieve your stakeholder objectives? (i.e. financial data, regulatory data, environmental quality data, market data, etc.)** **ii. Describe how the 'new information' supplied by the follow-up well test changed the dynamic of the negotiation. Consider shifts in power dynamics and trust.** **1. What does this experience teach us about negotiating with missing/imperfect information?** **2. What does this experience teach us about negotiation when new data arises mid-process?** 3. **Would it have made a difference if the new data came from an industry test vs. a county health department test? Why or why not?**
Total	5.5 – 8 hours	

Suggestions for Inserting New Information into Simulation

The key to this simulation is inserting the 'new information' about groundwater quality tests into the negotiation at the desired moment (see below). Note that there are multiple ways to provide the new information as you choose between third-party testing companies paid for by government agencies or private testers paid for by an interest group, information that indicates higher levels of pollutants potentially linked with drilling activity or information that confirms no change in existing levels. It is important to adjust which of these variables you activate according to your desired learning outcomes.

In the Background Information, all participants are given the following information regarding the water quality of a well next to a school and near where a drilling pad has been located for hydraulic fracturing, or 'fracking' for extracting natural gas:

Table A: Toxicity Levels of Chemicals in Drinking Water

Toxicity Level	Concentrations at Which Toxicity Occurs (ppm)	Chemicals
HIGH	> 0.001	Ethylene glycol
MEDIUM	> 0.01	Isopropyl alcohol, methanol
LOW	> 0.1	Potassium carbonate, boric acid

These numbers are fictionalized for the simulation and are not based upon actual levels.

Table B: Baseline Groundwater Chemical Testing of School Well (January 5)

Chemical Name	Toxicity Level	Concentration (ppm)
Ethylene Glycol	HIGH	0
Methanol	MEDIUM	0
Isopropyl Alcohol	MEDIUM	0
Boric Acid	LOW	0.001*
Potassium Carbonate	LOW	0*

**Found in fertilizer, laundry detergents, and other household products*

When deemed appropriate, circulate an updated table with new information. Note that this information could follow one of several tracks as well as navigate the boundary of what is considered 'toxic' and what is not.

- **No change** – evidence now exists that illness in the community is not linked to fracking activity and that water quality is likely not compromised.

Example: use original table

- **Increase in Boric Acid and Potassium Carbonate concentrations to levels either under or over toxicity** – uncertainty still exists as these substances may stem from other, non-fracking sources.

Example:

Table C: Groundwater Chemical Testing of School Well Results (new date)

Chemical Name	Toxicity Level	Concentration (ppm)
Ethylene Glycol	HIGH	0
Methanol	MEDIUM	0
Isopropyl Alcohol	MEDIUM	0
Boric Acid	LOW	0.8*
Potassium Carbonate	LOW	1.2*

**Found in fertilizer, laundry detergents, and other household products*

- **Increase in medium and high toxicity elements but not to levels of toxicity** – evidence that fracking activity is likely having an impact on community water supplies but not to the extent that illness effects would be seen.

Example:

Table C: Groundwater Chemical Testing of School Well Results (new date)

Chemical Name	Toxicity Level	Concentration (ppm)
Ethylene Glycol	HIGH	0.00001
Methanol	MEDIUM	0.003
Isopropyl Alcohol	MEDIUM	0.0007
Boric Acid	LOW	0.04*
Potassium Carbonate	LOW	0.25*

**Found in fertilizer, laundry detergents, and other household products*

- **Increase in medium and high toxicity elements to levels of toxicity** – evidence that fracking activity is likely having an impact on community water supplies and incurring negative health impacts.

Example:

Table C: Groundwater Chemical Testing of School Well Results (new date)

Chemical Name	Toxicity Level	Concentration (ppm)
Ethylene Glycol	HIGH	0.0003
Methanol	MEDIUM	0.04
Isopropyl Alcohol	MEDIUM	0.02
Boric Acid	LOW	0.8*
Potassium Carbonate	LOW	1.2*

**Found in fertilizer, laundry detergents, and other household products*

It is important that the new data not be inserted in the last third of the time allotted for the exercise so that the simulation participants have the opportunity to adapt.

Simulation Character Interactions

The following table outlines primary positions and interests of the simulation characters, indicating possible conflicts and coalitions that may occur and form. *Note that additional positions and interests exist in the role sheets outside the stated issues and should be identified prior to simulation implementation*.

	Chemical Disclosure		Monitoring Agency		Monitoring Frequency		Other
Stakeholder	**Position**	**Interests**	**Position**	**Interests**	**Position**	**Interests**	
Chinnington (Charles County)	1) Public opinion 2) High and moderate toxicity chemicals	Voter approval; Economic benefit; Property rights; Community benefit	Third party	Property rights; Public interest	Monthly	Voter approval; Economic benefit	Sees severance tax to fund spill cleanups
Peterson (ChemPlus)	No chemicals	Job security; Competitive advantage	Industry	Cost efficiency; Time efficiency	Quarterly	Cost efficiency; Time efficiency	Willing to substitute chemicals with subsidies
Faldowski (Donnelly Brothers)	No chemicals	Cost efficiency; Profit	1) Industry 2) DMME	Cost efficiency; Time efficiency	Quarterly	Cost efficiency; Time efficiency	Hesitant to adjust land leases, sue DMME; Will use campaign donation
Abel (MAADON)	1) All chemicals 2) All but low toxicity chemicals	Public health; Ecological health; Community economic benefit	1) Third party 2) DEQ or DMME	Public health; Ecological health; Quality of monitor	Daily	Public health; Ecological health	Willing to use news media; Interest in severance tax
Raines (EcoVirginia)	All chemicals	Ecological health; Transparency	DEQ	Ecological health; Political will	Daily	Ecological health	Sees severance tax to fund spill cleanups
Eggleston (Homesteads)	1) No chemicals 2) High toxicity chemicals only	Economic benefit; Public health	Industry	Property rights; Small govt.	Quarterly	Property rights; Liberty	Preserve family history
Kao (DMME)	High and moderate toxicity chemicals	Economic benefit; Public health	DMME	Financial security; Cost efficiency	Monthly	Economic benefit	Strong relationship with Donnelly
Williams (Governor)	None officially	Reaching an equitable solution	1) None officially 2) DMME	Reaching an equitable solution	1) None officially 2) Quarterly	Reaching an equitable solution	Authority to subsidize costs to industry; Gov. will increase DMME budget

Additional Resources and Background Readings

Information Uncertainty and Environmental Negotiation. Research is still emergent regarding problem uncertainty and the emergence of new problem information during negotiation processes around environmental and health issues. However, for an article about how stakeholders use information in hydrofracking land leasing negotiations to build trust, see Liss, J. (2011), Negotiating the Marcellus: The Role of Information in Building Trust in Extractive Deals. Negotiation Journal, 27: 419–446. Alternately, for an article about general information impacts on negotiation, see Stuhlmacher, A. F., & Champagne, M. V. (2000). The impact of time pressure and information on negotiation process and decisions. *Group Decision and Negotiation*, *9*(6), 471-491.

Negotiation. A primer on negotiation as an exercise in problem solving can be found at Kelman, H. C. (1996). Negotiation as interactive problem solving. *International Negotiation*, *1*(1), 99-123. Specific information about the role of a Best Alternative to a Negotiated Agreement (BATNA) may be found at http://www.pon.harvard.edu/category/daily/batna/.

Negotiated Rulemaking. The following articles and resources provide background information and evaluation of negotiated rulemaking as an administrative process:

- Coglianese, C. (1997). Assessing consensus: The promise and performance of negotiated rulemaking. *Duke Law Journal*, 1255-1349.
- Susskind, L., & McMahon, G. (1985). Theory and Practice of Negotiated Rulemaking, The. *Yale J. on Reg.*, *3*, 133.
- http://www.epa.gov/adr/factsheetregneg.pdf
- https://www.law.cornell.edu/uscode/text/5/part-I/chapter-5/subchapter-III

Miscellaneous

There is an opportunity to add roles to the simulation by taking advantage of the fact that two of the activist roles are given to the media as a potential political tool to use during the negotiated rule process. At various times during the negotiation, headlines could be distributed to let the role players know what is going on in the public realm while they meet behind closed doors.

It is also feasible to insert multiple new tables of well water data deriving from multiple testing sponsors such as:

- A test from labs owned by the fracking industry.
- A test from the DMME.
- A test from a third-party lab paid for by EcoVirginia.

This enables discussion about data itself – when it is trusted and when it is not and how this changes the influence of certainty/uncertainty.