

Community Resources: Social Activism and Community Responses to Hydraulic Fracturing in Boulder County

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Abstract

Over the last several years, hydraulic fracturing (fracking) has become a polarizing issue across Boulder County, Colorado. My research examines activism in response to fracking and subsequent changes in local regulations. Drilling moratoriums were enacted in Longmont, Erie, Lafayette, and unincorporated Boulder County, but the ensuing regulations on fracking differed. The focus of my research is the town of Longmont, where a community-based organization initiated and voters approved a ban on fracking by a large margin. Through interviews with activists and community members, this research examines this activism and why some community-based organizations against fracking achieved stronger regulations than others. This paper argues that groups that effectively accumulated and utilized social capital were able to achieve more success in combating the spread of fracking. Challenges that impeded the success of some groups are also discussed.

“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.” – Attributed to Margaret Mead (no contemporaneous source is known).

Introduction

For many people near areas with extensive reserves of natural gas, there has been a great deal of publicity surrounding the extraction of this resource. Much of this publicity is about hydraulic fracturing (fracking¹), a technique that has been the subject of divisive controversy over its safety and effects. The controversy stems from the massive increase in fracking’s use over the last decade coupled with a lack of scientific consensus about the effects of the technique. With videos of people lighting their tap water on fire and stories of nose bleeds, migraines, and other ailments from residents living near wells, alarm and concern have spread. Activism against fracking has occurred throughout the country in response to concerns about its effects, demanding that the technique be banned.

Although a few decades old as a technique, fracking’s widespread use is a relatively new development in oil and gas extraction. Fracking is “a technique that involves pumping millions of gallons of water laced with chemicals deep underground” at high pressure, causing rock formations to be broken open to release large quantities of natural gas (Marsa 2011 [Online]). However, within the last decade hydraulic fracturing has been combined with horizontal drilling which allows for “the ability to turn a...drill bit as much as 90 degrees,” and then for wells to be drilled for thousands of feet horizontally (Mooney 2011 [Online]). The combination of these two techniques over the last decade has allowed extensive drilling in previously inaccessible natural gas formations (so-called tight or unconventional formations). Thus, a boom in natural gas

¹ The technique of hydraulic fracturing is colloquially referred to by the term fracking. Since fracking is more commonly used (especially by activists) I will follow that usage. I will subsequently refer to hydraulic fracturing as fracking, although I will not change the usage of the term in quoted text. Furthermore, I will use fracking in the wider, colloquial sense, to refer to the drilling, stimulation, and production phases of a well. Industry and sometimes scientific discussions use hydraulic fracturing to refer to just the stimulation phase of a well.

production has occurred from various unconventional (often shale rock) formations around the United States.

Due to the novelty of the combination of horizontal drilling and fracking, there is a significant gap in the scientific research on its long term effects. Environmentalists and citizens have raised many concerns about the risks of fracking. The main concerns are potential contamination of groundwater, pollution from the well site, and negative health effects. Although there is lack of consensus in completed peer-reviewed science, there have been many anecdotal cases of health problems and contamination following increases in fracking. There also have been concerns about the close proximity of wells to schools and neighborhoods, which can cause communities to resemble industrial zones due to the noise, light, and pollution. These cases and the unknowns surrounding fracking have led to a significant backlash against the process in communities where there are proposed or operating wells.

Due to the lack of a scientific consensus on the risks of fracking and industry campaigns touting the benefits of natural gas, state and federal regulations have been minimal and sometimes even lowered. For example, “in 2005 Congress...exempted fracking from regulation under the Safe Drinking Water Act,” (Scientific American Editors 2011). The local backlash against fracking has not been successful in persuading most state and federal officials to significantly increase regulation at this time. Thus, local residents have turned to their towns and counties in order to increase regulations.

Boulder County and the surrounding area have seen significant increases in fracking over the last few years, leading to the formation of many community-based organizations opposed to fracking. There have been organizations formed in Boulder County, Longmont, Erie, and Lafayette with moratoriums on fracking being enacted in all four locations. In addition, increased

regulations of varying degrees were passed in Longmont, Erie, and Boulder County. A community-based organization in Longmont also succeeded in getting a measure to ban fracking in city limits on the November 2012 ballot that subsequently passed by a large margin.

There have been few completed studies on social activism in response to fracking, especially from the discipline of anthropology. This study will fill some of the gaps in our knowledge about social activism occurring in response to fracking. Additionally, Boulder County provides an excellent study location because of the proximity of different community-based organizations opposed to fracking formed in separate but geographically-close towns. A comparison can ascertain the varied results these different groups have achieved in their communities based on the structures and techniques of the different organizations. Therefore, an analysis may reveal what makes for successful activism. I will argue that the differing accumulation of social capital allowed some groups to achieve more influence on their local political leaders, thus promoting greater social change. I will also discuss the problems some groups faced in accumulating of social capital, as well as possible solutions. In my conclusion, I will suggest general lessons that can be influential in the success of community-based efforts at social change. The future of the anti-fracking movement and paths for future research will also be discussed in the conclusion.

“We’ll exhaust our present oil supplies by-and-by. That’s as certain as the continuance of the income tax. But there will be new though more expensive sources, among which the oil-shale deposits of the Far West will play the leading role twenty or thirty years hence.” – August 1922. in The Early Sunset Magazine. Paul C. Johnson (Ed.). 1977. San Francisco: California Historical Society.

Background

Explanation of the Technique of Fracking

The technique of fracking is an extremely complicated process that has taken decades to develop. “Hydraulic fracturing is a complex operation in which the fluid is pumped at a high pressure into a selected section of the wellbore. The high pressure creates a fracture from the wellbore extending into the rock formation containing oil or gas” (Yew 1997:xi). In practice this involves injecting a mixture of water, sand, and chemicals into a drilled well at pressures high enough to crack the rock. Fracking fluid mixture usually contains about 90 percent water, nine percent sand, and one percent chemicals (Ehrenberg 2012 [Online]). The sand helps to keep the fractures open while the chemicals serve a variety of purposes, such as anti-bacterial or anti-corrosive. The cracks in the rock then allow the trapped oil and gas to escape up the well and be captured. During drilling a well is encased, which involves inserting a steel tube with concrete sealing between the wellbore and rock. The casing is supposed to protect groundwater and the environment from contact with any of the activities of the drilling, “but the casings are put under enormous pressure and sometimes fail” (McGlynn 2013:57). Since “hydraulic fracturing is conducted in a reservoir at great depth...the dimension of the induced fracture is as large as hundred to thousand feet” Yew (1997:150). In the United States most fracking takes place in shale rock deposits, which are usually over 5000 feet underground.

The technique of fracking has allowed access to more natural gas than was available with conventional techniques. Although the technique has been around for decades, it was “not until

fracking joined up with another existing technology, horizontal drilling that the approach was used to unlock vast stores of previously inaccessible natural gas,” (Ehrenberg 2012 [Online]). Much of this previously inaccessible natural gas was in strata of usually less than 100 feet in thickness, making conventional vertical drilling uneconomical. With horizontal drilling operators can turn a drill bit up to ninety degrees, which allows for wells to extend for thousands of feet in a single direction. The combination of fracking and horizontal drilling made extraction of natural

gas from extensive shale

formations economically

viable, leading to the current

boom in natural gas drilling.

Due to the potential of

fracking to tap previously

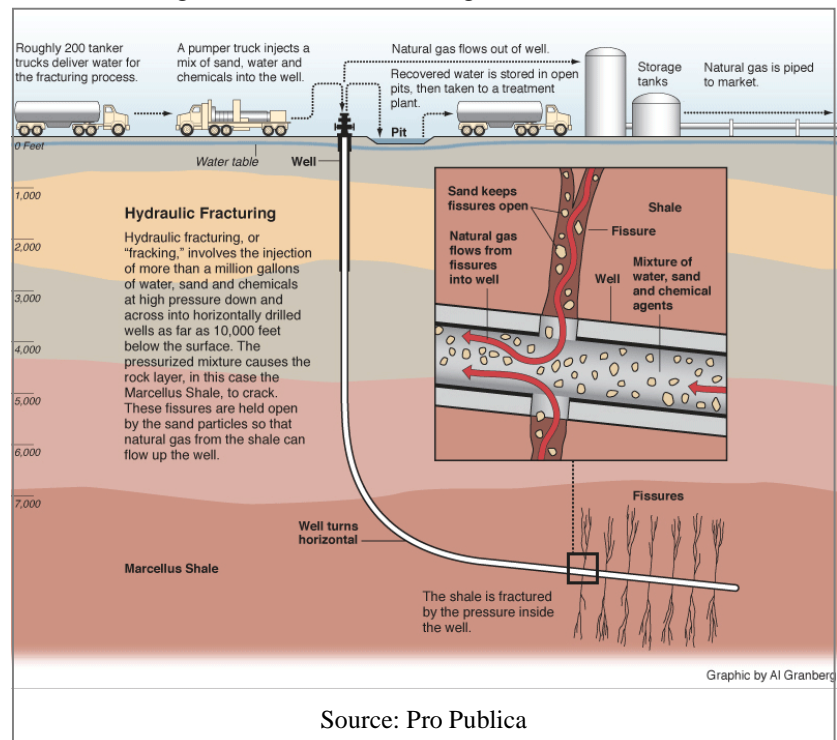
unavailable resources, “today

hydraulic fracturing is used in

about nine out of ten onshore

oil and gas wells in the United

States,” (Ehrenberg 2012 [Online]).



The process of fracking uses a significant amount of water: “A typical fracked well uses between 2 million and 8 million gallons of water” (Ehrenberg 2012 [Online]). Due to the extensive volumes of water used in fracking and the typical ratio of ingredients there are hundreds of thousands of gallons of chemicals used to frack a well. There are hundreds of chemicals used and some are known to be dangerous to humans. After water has been used to frack a well, most of it comes back up the well; this fluid is called produced water. Currently,

operators have the ability to drill multiple wells on a single drill pad, up to eight different wells at one location. Thus, new drill sites are usually multiple wells. Fracking is also used to increase the production of previously drilled or abandoned oil and gas wells.

Current State of Peer Reviewed Science on Fracking

An important factor in the ongoing science of fracking is the difficulty in establishing an understanding of what actually occurs underground. Yew (1997: xi, 150, 152) states that most laboratory experiments regarding fracking test limited aspects of the technique, due to the complexity of fracking and the expense of realistically representing in a laboratory what occurs thousands of feet underground. He also states that studies of fracking in the field have been limited, again due to the expense and complexity of the technique. With the recent upsurge in the use of fracking, there are many in-progress studies of the technique and its possible risks. However, there are not many completed peer-reviewed studies on the nature and risks of fracking. Further complicating the scientific understanding of fracking has been the occurrence of studies giving different results, with some declaring fracking safe and others condemning the technique as dangerous. Currently, a comprehensive study by the EPA on the effects of fracking on drinking water is being conducted with a report expected to be released for public and peer review in 2014 (EPA 2012 [Online]). This report is eagerly anticipated by many who hope that it will settle many of the disputes over the effects of fracking.

There have also been allegations of misconduct in the research on fracking, specifically several high profile cases involving conflicts of interest. A report from the University of Texas at Austin that found no link between water contamination and fracking was discredited when methodological flaws and conflicts of interest were revealed. While the study claimed to be evidence-based, it lacked scientific rigor. It was also discovered that the head of the study sat on

the board of a drilling company throughout the duration of the study, with compensation from the company exceeding “\$1.5 million over the last five years” (Henry 2012 [Online]). The impartiality of studies by Pennsylvania State University and the State University of New York at Buffalo has been similarly compromised by the revelation of close of ties to the oil and gas industry (Schiffman 2013 [Online]). Previous scientific research on the technique has shown the economic benefits fracking can bring. However, negative effects from fracking have not been definitely established at this time. As McDonnell (2013 [Online]) states: “In the national fracking debate, unassailable data about environmental impacts is in high demand and short supply.” What seems likely, given the information we do have, is that there are significant risks from fracking but that we do not know the extent of their occurrence.

Possible Risks of Fracking

There are many possible risks associated with fracking although the link between fracking and these adverse effects is not proven in most cases. The most common risks cited are contamination of ground or surface water, air pollution, health risks, light pollution, noise pollution, degradation of transportation infrastructure, lowering of property values, and earthquakes. The release of the documentary film *Gasland* (2010) led to increased attention on fracking as it documented its growth and presented accounts of contamination from the process.

The industry commonly states that there are no proven cases of fracking contaminating groundwater and they state this based on a very narrow definition of fracking. When the industry discusses fracking, they mean just the technique of fracturing a rock formation, not the drilling and production stages of the well. However, most people use fracking to denote the entire process from drilling through production to the capping of a well. In the common use of the term, fracking denotes the life cycle of a well and I have followed this usage (Footnote 1).

Contamination of water is the most commonly discussed risk associated with fracking. The risk of contamination can stem from two sources: chemicals in the fracking fluid and the produced water created after the fracturing of a rock formation. Fracking fluid contains chemicals that are known to be dangerous to humans, such as the carcinogen benzene. However, there are no comprehensive and industry-acknowledged lists of the chemicals used in fracking due to the proprietary nature of some of the chemicals. While the website FracFocus.com lists fracking chemicals and well sites, submission is voluntary and full disclosure of chemicals is not mandated. The industry claims that many of the chemicals used in fracking are trade secrets and revelation would harm their business. Due to loopholes in almost every regulation on fracking, oil and gas companies can claim almost any chemical is proprietary and there is no need to reveal the chemical to the public.

The produced water from a well “typically has a lot of salt, along with naturally occurring radioactive material, mercury, arsenic and other heavy metals” (Ehrenberg 2012 [Online]). With these possible contaminants being associated with produced water, the potential for pollution is evident. If a well is drilled and then encased properly before fracking, there should be no contamination. Yet a study by Osborne et al. (2011:1) found increased methane concentrations in drinking water closer to fracked wells in Pennsylvania. While there is no consensus that the study has proved a link between fracking and contamination of drinking water, the study does provide reasons to be concerned. Contamination from fracking is often blamed on the failure of well casings or the improper encasing of a well. The improper encasing of a well or casing failure allows gas or other sources of contamination to migrate into underground sources of water. Unfortunately, we do not have peer reviewed data on how often well casings fail or are improperly constructed. Another way that groundwater is contaminated is from leaks of fracking

fluid on the surface, which can then travel down to groundwater. Groundwater can also be contaminated from improper disposal or leaks of produced water on the surface. Such improper disposal includes improperly lined open evaporation pits, spills, or illegal dumping of produced water.

Air pollution can result from fracking without significant controls in place. Leaks of methane from a well can enter the atmosphere. There are also many volatile organic compounds (VOCs) that can be released into the air from a producing well. Many of these VOCs are linked to increased levels of ozone, which increases the risk of asthma. The large amount of truck traffic necessary to drill and frack a well can also cause significant amounts of air pollution and air quality degradation. Natural gas production has been thought to be cleaner for the air and environment than the production of coal. According to the EPA (2013 [Online]) the burning of natural gas does not produce sulfur dioxides or mercury compounds and produces less nitrogen oxide and carbon dioxide than coal or oil. However, it is unclear whether coal and natural gas produce significantly different amounts of greenhouse gases over their complete lifetimes. Natural gas is mostly methane and methane is a much more potent short-term greenhouse gas than carbon dioxide. Therefore, methane leaks during production could negate any benefits from the reduction in emissions from natural gas combustion. According to Alvarez et al. (2012:3), for methane leaks there is a “3.2% threshold beyond which gas becomes worse for the climate than coal.” Alarmingly, several studies have pointed to the possibility that natural gas may be dirtier than previously thought. Howarth et al. (2011:679) published a study that calculated “during the life cycle of an average shale-gas well, 3.6 to 7.9% of the total production of the well is emitted to the atmosphere as methane.” Their calculations were supported by a study done by NOAA (Pétron et al. 2012:1) in Weld County that found leakage of methane from natural gas extraction

was likely higher than 3.2 percent. Increases of ozone have also been seen in areas of increased oil and gas development, such as in Colorado (Cooper et al. 2012:1). While these studies have not created complete consensus in the scientific community, they present data that is deeply concerning and reiterate the point that more research is necessary.

During the process of drilling a well there is significant noise and light. During the actual drilling, drill site lights are on constantly. The noise from the machines drilling and pumping the fracking fluid underground is also loud. The combination of these two effects can be quite significant if the well is being drilled near a residence or occupied structure.

Due to the large amount of water necessary for fracking a well, hundreds of truck trips to a drilling site carrying full loads of water are necessary. These trips and the disposal of this water after its use mean that fracking can create significant stress on transportation infrastructure, such as roads. This extensive traffic can compromise the expected durability of roads.

There is a circumstantial link between fracking and the induction of earthquakes. Fracking has been linked to earthquakes in several cases, some discussed by Ehrenberg (2012 [Online]). Many of these cases stem from the disposal of produced water under high pressure in wastewater wells. This disposal can aggravate fault lines or areas of high seismic potential. Fountain (2012 [Online]) discusses how the USGS recently weighed in on the issue and concluded that increased oil and gas development was responsible for an increase in earthquakes measured in Arkansas and Oklahoma. However, the USGS was unable to determine what precise part of the increased oil and gas development was causing the seismic activity.

Another concern is that fracking decreases property values. Like many possible consequences of fracking, the extent of a link between fracking and property value fluctuations remains unknown. I spoke with three real estate agents: two in Boulder County and one in Weld

County. None of them had directly experienced a case where fracking had any effect on property values. One agent had read about cases of fracking negatively affecting property values. Another had heard of cases where nearby fracking had attracted people to properties due to the open space around an active well, while the third had not heard of any link.

An interesting and parallel concern was that fracking could cause people to move away from communities. I heard anecdotes about this until I got in contact with several people in Erie. There were several members of Erie Rising who were in the process of moving out of Erie. One member of Erie Rising, Marie, spoke of her experience with people moving out of Erie:

Right now I know probably about 10 people, most of them have moved, and the other ones' houses are on the market and they're getting ready to move. So people are moving out...It's definitely happening. So I guess people who are for fracking will maybe be the only ones left in Erie after a while.

History of Fracking in the United States and the World

Fracking has been used extensively across the United States over the last six decades. In 1949, "an exclusive license [was] granted to the Halliburton Oil Well Cementing Company" for the technique of fracking (Montgomery 2010:2). After the invention of fracking, "almost 2.5 million wells have been fractured around the world" (McGlynn 2012:66). Since almost all the easily recoverable natural gas has been extracted in the United States, fracking is the only technique that allows for the recovery of most remaining natural gas deposits. In 2012, "thanks largely to fracking, the US is set to overtake Saudi Arabia and Russia to become the world's biggest oil producer by 2017" (Arsenault 2013 [Online]). Currently, the United States produces enough natural gas for its own consumption and at the current rate that production is increasing the United States will produce as much energy as it consumes. In 2011, "one-fourth of the nation's energy supply came from natural gas" (McGlynn 2012:55). Natural gas production has

been billed by the industry as a way to take the United States toward ‘energy independence.’ However, there are also many projects sponsored by energy companies to expand the capability of the United States to export natural gas in order to capitalize on the significant difference between low natural gas prices in the United States and the rest of the world.

The first federal regulation of natural gas began in 1938 with the Natural Gas Act, which led to price controls (McGlynn 2012:63). After several large natural gas shortages at the end of the 1970s a trend toward deregulation of natural gas began, which has continued to this day. After the loosening of regulations in the 1980s and 1990s natural gas production and exploration began to increase. The 2005 passage of the Energy Act is often cited as leading to our current boom in natural gas production. The passage of this bill “exempted the process [fracking] from regulation under the Safe Water Drinking Act” (McGlynn 2012:66). McGlynn further states that fracking has never been regulated by the EPA and that natural gas companies are exempt from many federal environmental laws such as the Clean Air and Superfund Acts. Each year from 2009 to present, the Fracturing Responsibility and Awareness of Chemicals Act (FRAC Act) has been introduced in Congress but has failed to pass. The bill seeks to give more authority to the EPA to regulate fracking, but it has not gained widespread support in Congress. Currently, the vast majority of regulation of natural gas extraction and of fracking occurs at the level of individual states.

The controversy over fracking extends throughout the United States and around the world. Internationally, “fracking has been banned in Quebec, Canada, France, Germany, and South Africa” pending the completion of more studies of the technique (McGlynn 2012:67). A variety of states in the United States have enacted regulations of fracking in response to citizen concerns. However, only the state of Vermont has banned the practice of fracking (the state has

no shale gas formations). In December of 2012 a variety of state and local anti-fracking groups announced the formation of a national anti-fracking coalition: Americans Against Fracking (Food and Water Watch 2012 [Online]).

History of Oil and Gas Drilling in Colorado

Mineral extraction has been a part of Colorado's economy since the 1800s. A great part of the initial settlement of Colorado and the growth of many towns in the state was fed by mining booms, due to large deposits of precious minerals. Hydrocarbon extraction also has been a part of Colorado's history and fracking has occurred in Colorado for decades. Tests of different ways to do fracking have been done through this history. However, one unsuccessful experiment deserves a specific mention:

In 1969, the government detonated a subterranean nuclear bomb to break loose natural gas deposits from tight sandstone formations more than 8,000 feet below ground on a Colorado mountain. The bomb was twice as powerful as the one that destroyed Hiroshima, Japan, in 1945. The scheme worked — to an extent. The gas was unlocked by the blast but was deemed too radioactive for commercial use. (Tsai 2010 [Online])

The current boom in shale gas extraction due to fracking is the latest act in decades of searching for minerals across Colorado. Most of the natural gas extraction in Colorado occurs in the Wattenberg field, which is part on the Niobrara Shale formation. The Niobrara Shale formation is mostly in northeastern Colorado but extends outside the state as well. According COGA (Colorado Oil and Gas Association 2011 [Online]), "In northeastern Colorado, the overall thickness of the Niobrara formation varies in depth between 200 and 400 feet and is found approximately 7,000 feet below the surface."

Like many states in the West, Colorado law recognizes the severed ownership of mineral and surface rights, meaning that different parties can own the surface land and subsurface minerals underneath. Under Colorado law a party owning subsurface minerals has a legal right to

access those minerals. Thus they would not necessarily need to gain the permission of a landowner in order to obtain surface access to recover those minerals. While these situations are uncommon, they are still a worry for landowners who do not know if they own their mineral rights and are opposed to the using their land for resource extraction. Colorado law also recognizes two types of municipal governance: statutory and home rule. Statutory towns are directly subsidiary to the state, while home rule towns have more autonomy and authority over matters within their city limits. Home rule municipalities also have an avenue for citizens to put initiatives on local elections. Colorado law does not recognize home rule counties.

By statute, the Colorado Oil and Gas Conservation Commission (COGCC) is tasked with regulating, monitoring, and promoting oil and gas drilling in state. This triple role of regulation, monitoring, and promotion can pose a conflict of interest, which the COGCC has acknowledged:

As long as there is severed mineral interest ownership in Colorado and law which protects the property rights of mineral rights holders to access their mineral estate, and as long as the COGCC's statute charges the COGCC with promotion of oil and gas development, the COGCC will be limited in its ability to satisfy surface owners or to stop oil and gas development, regardless of Commission makeup. (2011c [Online])

One common complaint from various activists and opponents of drilling is that they see the COGCC as ‘the fox guarding the hen house.’

The COGCC (2011c [Online]) states that the law governing it “is intended to keep the general public safe when drilling and development occurs, and is not directed at protecting individual property values or a preferred quality of life.” This means that the COGCC is tasked with the promotion of oil and gas drilling even if it means the degradation of an individual’s or group of individuals’ property or quality of life. The COGCC is only supposed to protect the general public, not individuals or small groups of individuals.

The COGCC (2011a:1) provides a summary of the relationship between hydrocarbon resource deposits and fracking:

Most of the hydrocarbon bearing formations in Colorado have low porosity and permeability. These formations would not produce economic quantities of hydrocarbons without hydraulic fracturing. Fracture treatment of oil and gas wells in Colorado began in the 1970s and has evolved since then. Recent technological advances combine multi-stage fracture treatment with horizontal drilling.

Thus, fracking is necessary to access most of the hydrocarbons that are situated in Colorado. At this time, about nine out of every ten natural gas wells in the state of Colorado are fracked, and at the beginning of 2013, “The COGCC has 16 inspectors [and] Colorado has about 49,236 wells, up 31 percent since 2008” (Finley 2013b [Online]).

Accusations of groundwater contamination from fracking in Colorado came to prominence with the release of the film *Gasland*. However, the COGCC steadfastly denied that such contamination was widespread or that all the incidents in the film were caused by fracking. Although the COGCC does acknowledge that some contamination of groundwater has occurred in Colorado, it does not make those statistics readily available. Finley (2013d [Online]) states that “About 17 percent of 2,078 oil and gas spills that companies reported since January 2008 have contaminated groundwater. Fracking wastewater is one of the most common substances spilled.” However, some have placed that number even higher. Davis (2013 [Online]) claims that 43 percent of spills result in groundwater contamination.² One article states that, “oil and gas commission spill records show 255 incidents in which groundwater was ‘impacted’ during 2009, 2010 and 2011” (Soraghan 2012 [Online]). No peer reviewed studies of groundwater contamination in Colorado exist.

Regardless of the risks, fracking will increase as coal is increasingly regulated. In 2010, the Clean Air Clean Jobs act was introduced and passed by the Colorado legislature. The bill requires utility companies to “convert 50 percent of their coal-fired generation capacity, up to

² As Davis (2013 [Online]) is a blog and there is no independent confirmation of his figures, caution should be exercised in accepting the accuracy of this data presented.

900 megawatts, to natural gas by Dec. 31, 2017,” (SWEEP 2010 [Online]). The passage of this bill was a victory for environmental groups that had engaged in a nationwide anti-coal campaign. Yet this bill effectively mandates fracking as it is the only technique capable of recovering most of the natural gas deposits in Colorado and the United States. Although Colorado regulators approved regulations in 2011 that would require energy companies to disclose the chemicals used in hydraulic fracturing, proprietary chemicals are not covered (Banda 2011 [Online]). Some contend that this trade secret loophole for chemical disclosure is ripe for abuse by the industry (Dodge 2011b [Online]).

*“As soon as several of the inhabitants of the United States have taken up an opinion or a feeling which they wish to promote in the world, they look out for mutual assistance; and as soon as they have found one another out, they combine. From that moment they are no longer isolated men, but a power seen from afar, whose actions serve for an example and whose language is listened to.” – Alexis de Tocqueville (*Democracy in America*, 1899. Henry Reeve Translation).*

Results

As my in-depth research drew to a close, I had interviewed ten individuals, talked with many more people, and been immersed in the issue of fracking for many months. Significant change had occurred on almost every front, most of the change in positive directions for the activists. Longmont succeeded in getting a question on the ballot to ban fracking that passed with almost 60 percent of the citizens voting for the measure. Lafayette activists were gearing up to emulate Longmont and pass a ban before or during the next election. Boulder County saw upheaval and finally an extended moratorium. There was an effort in the city of Boulder to ban fracking, an effort that is currently in its infancy. The city council of Fort Collins, the fourth largest town in Colorado, passed a ban on fracking at the beginning of March (Duggan 2013 [Online]). The issue had become so controversial that the COGCC was considering increasing state-wide regulations. Cities and towns across the state considered following Longmont’s example and ban fracking, despite threats of an industry or state lawsuit. Yet there were several other developments that did not favor the activists. For example, Erie instituted a voluntary agreement with the industry to allow fracking over the protests of activists. And despite all the progress by activists, in 2013 the number of wells in the state reached a new high of 50,000 (Finley 2013a [Online]).

In this chapter I will describe the changes that I saw occur and how these changes were perceived by the individuals interviewed. This chapter, divided into sections for each

municipality, will describe how things unfolded in each city from the perspectives of activists, supplemented by details and context from news reports and personal anecdotes.

Longmont

In the beginning, the activism against fracking in Longmont was driven by alarm and a sense of an impending threat. One activist related to how she first heard about fracking in October 2011 from a telephone survey with an “extraneous question to the effect of 'would you be ok with oil and gas drilling on Longmont's open space?'" (Quixote 2013). She looked into this possibility and found out that negotiations had been in progress since June 2011 to drill on Longmont’s open space without any word reaching the public.

Quixote was not the only person who was concerned about the possibility of oil and gas development on the city’s open space. In fact, this was a common concern of the activists I talked to in Longmont. Carol stated:

The first thing we read was that they were going to drill out near Union Reservoir on the East side of town, which is public space land. So immediately quite a few of us went to city council to speak...Then we saw who was coming time after time and that's how we started meeting together. Thinking, well, maybe we better get organized. This looks bigger than we thought.

The enormous public outcry culminated in a city council meeting with almost two hours of public testimony urging the council to slow down and institute a moratorium.

On December 20, 2011 the Longmont City Council unanimously approved a 120 day moratorium on fracking. The passage of a moratorium was the first victory for the activists in Longmont and gave them breathing room to organize and figure out how they would respond to the possibility of oil and gas extraction. TOP Operating owned several wells around Longmont and sought to drill more (See Appendix 2). Yet its track record concerned many people because of a well near an elementary and middle school that “had higher-than-allowed benzene levels for

at least three years, at one point measuring almost 100 times the state limit,” (Rochat 2011a [Online]). Although the cause of the contamination is unknown, TOP Operating owned the well when the contamination was discovered and was thus charged with remediation. TOP was eventually fined by the COGCC for failing to complete the remediation in a sufficiently timely manner.



Natural gas well near school in Longmont
Source: Our Longmont

The first long-term undertaking for the activists in Longmont was to deal with the process of updating the city’s regulations on oil and gas, a process that began after the imposition of the moratorium. Parallel to this task was the role of educating politicians about the risks of fracking, efforts that were not always received with gratitude. Carol noted that “four of the city council members were completely unresponsive to our concerns. And even contemptuous a little bit.” The imminent threat of fracking inside the city, the challenge of dealing with the council, and the number of people concerned led to a group of activists coalescing. This group was called Longmont ROAR and ROAR stood for Responsible Oil And gas Regulations. As time passed, the extent to which the public was opposed to fracking in the city became clear. At an open house held by the city in February “the public and three of the city’s advisory boards strongly urged tougher regulation--and a longer moratorium--of oil and gas drilling in Longmont,” (Rochat 2012j [Online]). On February 10, 2012 the city of Longmont released a draft of new

rules for oil and gas drilling in the city limits. The rules, “If approved...would be the first update of Longmont's drilling regulations since 2000” (Rochat 2012f [Online]).

A difficulty the city faced in drafting its regulations was the complicated legal situation between state and local governments in Colorado about who has authority to regulate oil and gas drilling. Soon after the release of the draft regulations, the city planning commission recommended the approval of the regulations and the extension of the moratorium (Rochat 2012d [Online]). The draft regulations included many strict requirements, which the state of Colorado responded to with warnings that Longmont was overstepping its authority. Afterwards, the city council voted to extend the moratorium by an additional 60 days (Rochat 2012d [Online]).

While Longmont ROAR worked with the city council to strengthen the regulations, they also conducted outreach to educate the public about fracking. Quixote discussed what she felt was the culmination of this public outreach:

Longmont ROAR had this wonderful presentation down at Trail Ridge Middle School at the end of February [2012]. We had over 300 people...at that point knowledge in Longmont about what was going on began to explode.

Despite common concerns about fracking, there was “a fair amount of dissent at first” (Carol 2012). After all, “Longmont ROAR was an ad-hoc group that was formed of concerned citizens to educate themselves, to educate the community, and to lobby for the strongest possible regulations” (Quixote 2013). Yet there were many in the group who felt that the regulatory approach would never work and that only a ban could keep Longmont safe. These contradictory approaches created tension in the group that eventually led to an unofficial schism between those in favor of a ban and those in favor of regulations. These two factions undertook separate yet parallel paths, in the sense that both factions were opposed to fracking.

Longmont activists in favor of the regulatory approach asked the city council to toughen regulations and there were encouraging signs. However, the regulations became more unsatisfactory to the activists with every new draft and especially after continued lawsuit threats from the Colorado attorney general. By April and May of 2012, it became clear that the regulatory path was not progressing well. After reducing some of the strictness in the regulations the Longmont city council “voted 6-1 to have its draft oil and gas regulations prepared for an ordinance,” (Rochat 2012c [Online]). Yet at the second vote some weeks later, the rules were tabled until a later date instead of being passed. With the draft regulations tabled in May 2012, “It just became obvious to everybody it's a ban or to heck with it” (Carol 2012).

Most activists in Longmont felt similarly to Carol on the regulations eventually passed: “The regulations are full of holes, they weren't up to my standards, and I don't know anyone who was totally pleased.” Meanwhile, the faction of Longmont activists in favor of a ban had been preparing and laying the groundwork for a citizen initiative. Since public attention was focused on the activists who pursued tougher regulations, the plan for a ban was not well known. This element of surprise in initiating the ballot campaign for a ban was important because it allowed the Longmont activists to catch their opponents off guard, including a full page ad rebutting commonly used arguments for oil and gas development the day the initiative was announced.

Within a week of initiating the measure, Our Longmont's ballot question to ban fracking was approved to seek petition signatures in order to appear on the ballot (Rochat 2012a [Online]). As the campaign to put a ban on the ballot heated up, the Longmont city council acted on its proposed regulations and passed them (Rochat 2012e [Online]). Shortly following the passage of the regulations the state of Colorado notified the city of Longmont that it intends to sue over the city's new oil and gas regulations (Kindelspire 2012 [Online]).

The transition to seeking a ballot campaign meant that changes would have to be made to the organization of Longmont activists in order to effectively coordinate a campaign. For instance, “As part of that we needed to be a real entity, which Longmont ROAR was not. Longmont ROAR was an ad hoc group with a Facebook page and an email list” (Quixote 2013). Quixote’s reference to the email list is significant, because email lists are one of the most effective resources for any community-based organization. So an organization, Our Health, Our Future, Our Longmont, was formed to run the ballot campaign to ban fracking. After discussion and consultations with lawyers the group decided to adopt the legal structure of a non-profit (Quixote 2013). This meant that a small group of people were put in charge of the organization, a group that came to be called the steering committee.

A lot of people thought the transition to a more structured group was a turning point in the effort against fracking in Longmont. Furthermore, it was interesting the way members of the steering committee were chosen:

The steering committee was sort of selected by fiat rather than an election. Everybody on it was a cooperative person rather than an arguer. So since May everything has been done by this group of five. We're pretty united and pretty good at hearing each other and helping out where we can. But I don't think we could have skipped those early stages of self-education and quarrelling to a certain extent. (Carol 2012)

It was unclear if any people dropped out of the effort due to the transition from Longmont ROAR to Our Longmont, mostly because there were no official records of who was a part of Longmont ROAR. However, several people thought it likely that more people became involved with Our Longmont because of its higher profile and more structured organization. Many of the Our Longmont members felt that the clear decision-making structure was a strength of the group. Another strength of the organization was its messaging, which would become especially clear in the campaign. It was even evident in the name: “It is first and foremost about our health, about the future of our Longmont. That was the message, the name was the message” (Quixote 2013).

There were challenges faced in the effort to get signatures for the initiative. Carol stated: “Well, that was during that horrible heat wave. On a cool day it was 95 degrees. Every place that was good for gathering signatures was in the sun.” But by early August, soon after the regulations were adopted, the activists of Our Longmont had gathered enough signatures to have their measure qualify for the November ballot. In order to appear on the ballot, “the petition needed 5,704 valid signatures,” which were gathered along with over one thousand extra signatures (Rochat 2012g [Online]). With this first hurdle overcome, the activists turned their attention to the actual campaign as all eyes turned toward Longmont, the first city in Colorado to attempt to ban fracking.

Although the city of Greeley had banned oil and gas drilling decades ago, that ban was subsequently struck down in court. Thus, the activists knew they were forging a new path, hoping to get a new legal precedent. The Greeley ban had been struck down because it banned all oil and gas drilling, which was ruled unconstitutional under the Colorado Constitution. The Longmont ballot question, Question 300, did not ban all hydrocarbon extraction but only the technique of fracking. It was an untested legal issue, one currently being fought out in court. The city and activists argued that banning a technique does not amount to total ban, while the industry argued that banning fracking is a de facto ban since almost every contemporary well is fracked.

The campaign began in earnest with the activists strategizing and supporters volunteering from all over the city and county to help in the effort. However, it was not an easy campaign: “It was rough; I put in 12, 14 hour days almost routinely. If there was a time I only had to put in eight or ten I felt I was kind of lucky” (Quixote 2013). One of the key strategies undertaken by Our Longmont was precinct analysis, which was explained by Carol:

From the county you can get voter lists by precinct and what their party affiliation is...So they just did a whole bunch of demographic stuff...Then we had all the addresses of people who had signed our petitions so that was our base. So that's kind of how they do it. They used maps of the precincts and superimposed addresses on these groups that were Democrats and had voted in 2010 and whatever other parameters they used. [Some members] could put all that stuff in the computer and make it come out as walk lists or mailing lists. And we sent different kinds of mailings depended on what category. There's a lot of unaffiliated voters in Longmont and they were considered persuadable but not our base and so forth...We had about three week window in which you could vote early and once you voted early we didn't bug you anymore.

Everyone expected it to be a close election; Longmont had historically been a relatively conservative city, especially compared to the famously liberal Boulder. Soon after the petitions were approved, an opposition group called: Longmont Taxpayers for Common Sense was formed. Whether Question 300 would pass now became an issue of whether ground organization



Source: Longmont Times-Call

could triumph over advertising money. Quixote and others thought that Our Longmont's ground organization of about 120 volunteers was an advantage.

The campaign did not start out well for the opposition. Rochat (2012h [Online]) noted that "in September, the group changed its name to Main Street Longmont," due to an objection from a national group named Taxpayers for Common Sense. This name change meant the opposition had to re-file its paperwork and re-secure donations. The two groups were separate organizations, so Longmont Taxpayers for Common Sense could not give its money to Main Street Longmont. Their only option was to refund the donations and hope that the donors gave to Main Street Longmont. This organizational change undoubtedly hindered the opposition to Question 300 but the campaign was far from over.

Campaign spending became a central issue as record breaking amounts were spent and donors were revealed. According to Rochat (2012h [Online]), the contributions to Our Longmont totaled \$21,241 while the contributions to Main Street Longmont totaled \$447,500. The almost a half-million dollars spent to try to defeat Question 300 broke all previous campaign contribution records in Longmont. While this huge sum was unprecedented, it soon became more of a weakness than an advantage. This was because the media revealed that “28 companies donated to the group, all of them connected to the energy industry. The report showed no individual donations” (Rochat 2012h [Online]). While being outspent 20 times over, Our Longmont attacked Main Street Longmont for not having a single citizen of Longmont donating to its cause. In contrast, the funding of Our Longmont was mostly from Longmont residents. It soon became an issue of us (the citizens of Longmont) versus them (the oil and gas companies).

Quixote reported the disparity in advertising:

There were 12 full page ads against us. They had TV ads against us. I think they sent out 12 different mailers against us. But they didn't have people to people contact, they were trying to buy the election...but the industry stopped running ads November 1, so they were polling here all along.

Rachel also thought that the plethora of advertising was a weakness and joked that the advertising agency “ripped off the oil and gas industry.”

During the campaign the last seven former mayors of Longmont came out against the ban and appeared in Main Street Longmont advertisements. Yet Quixote emphasized that Our Longmont had the people in the city to contact and interact with citizens, while the opposition did not. Mike addressed this point too:

I think the lesson is that organizing works. We'd been out on the ground for a year before the oil and gas industry started carpet bombing the airwaves and it was people from the community that had been talking to their neighbors. These were parents, business owners, and you know folks that had grown up across the street. So this wasn't like it was some kind of outside force. The outside force was the oil and gas industry trying to frack and trying to come in and convince people it was a really good idea.

This advantage in people on the ground was one of the most significant factors in Our Longmont's victory and a significant miscalculation on the part of the oil and gas industry. Rachel thought that "the fact that they sent out so much stuff just killed them," largely by over-saturating Longmont citizens with political materials.

As Election Day approached, efforts were frantic to turnout supporters on both sides. The major newspapers in Denver, Boulder and Longmont had published editorials urging voters to reject the proposal to ban fracking (Healy 2012b [Online]). After the polls closed and votes were counted late into the night it soon became clear that Longmont's city charter would now ban fracking (Rochat 2012b). Over 59 percent of the voters supported the ban, a major defeat for the opposition. Overnight what had seemed to be a dream became a reality as Longmont became the first and, at the time, only municipality in the state of Colorado to ban fracking. Quixote commented on how large a victory it was: "Cross party lines, 50 out of 55 precincts voted in majority for us." The victory of Question 300 in Longmont was a rout that fundamentally changed the debate over fracking in Colorado.

As the excitement cleared and the reality of the passage of the ban set in, other issues arose. Governor Hickenlooper had already "warned Longmont residents that the ban is likely to mean a lawsuit from the state, which insists that only it has the authority to regulate drilling" (Healy 2012b [Online]). Yet after the passage of the ban, Hickenlooper seemed to flinch, possibly over the prospect of seeking to overturn a bipartisan, popularly supported measure. However, with the governor's support, the COGA responded and filed a lawsuit to overturn the ban, asserting that it was illegal (Healy 2012a [Online]). For those activists who expected to rest once the campaign was over, it became clear that the effort would be ongoing and attention on Longmont would not fade.

Overall, trust in elected officials had been damaged, both in Longmont and at the state level. Quixote told me one of the reasons for her continued disappointment with the city council was that it kept trying to make deals with the oil gas industry even during the campaign:

The council said 'we're not planning on selling or leasing the city owned mineral rights, that's not on the table.' Then the agreement came forward with TOP Operating, sure as shooting the city, as part of their big package with TOP, had leased its mineral rights that it owned... They lied to us, they flat out lied to us and as a citizen, as an activist, I'm getting mighty darn sick and tired of that.

Overall, this dissatisfaction with elected officials and their perceived friendliness to the oil and gas industry at the expense of their constituents was an issue that many activists brought up.

Carol gave a rundown of the plans Our Longmont had for the future:

So our idea was to draft some legislation and then get a sponsor of one of these state people, allowing local cities to have a say in whether they have fracking in their communities or not... Another thing is we had to make sure that the city would defend the charter amendment...we had to meet behind the scenes with them and then confront them at city council to make sure they're going to adequately and vigorously defend the city charter...A third thing is dealing with the press...then the fourth thrust is some kind of coalition...Mike is also working on a coalition involving other environmental national groups, Colorado chapters, and certain communities up and down the front range that are interested in continuing this issue.

Erie

The impetus for anti-fracking activism in Erie can be traced to the discovery by some local residents “that Canadian oil and gas company Encana Corp. had plans to drill eight natural gas wells on a site between Red Hawk Elementary School and Erie Elementary School” (Aguilar 2012d [Online]). Concern over the proposal to initiate fracking near the school that her children attended was the reason Marie cited for becoming involved against fracking. Due to concerns about the health effects of fracking “an anti-fracking blog and Facebook page, dubbed Erie Rising, popped up online in December [2011],” (Aguilar 2012d [Online]). Marie also explained that “Erie Rising is a 501(c)3 non-profit organization, we’re completely community volunteers

and we have a board of directors that kind of like makes the decisions but we really value the input from community members.” Thus, Erie Rising, which billed itself as concerned mothers and community members, began to push for a moratorium on drilling.

By January 2012, members of Erie Rising had begun to attend town hall meetings to exert pressure on local elected officials to do something about fracking in Erie. Over the beginning of 2012, Erie’s elected officials were in the process of considering new regulations and a moratorium on new oil and gas drilling. Erie Rising put pressure on the town board of trustees, but the proposed moratorium in the city was voted down. Then, six weeks later in March, “the board of trustees voted...to impose a six-month moratorium on any new applications for mineral extraction in Erie, most notably natural gas drilling,” (Aguilar 2012b [Online]).

One of the main reasons for this reversal by the town board was “an unpublished study by the National Oceanic and Atmospheric Administration (NOAA) that detected severely elevated levels of ozone-causing gases in Erie’s air,” Aguilar (2012f [Online]). The study found “that Erie exceeds Houston and Los Angeles in the levels of certain air pollutants commonly connected to oil and gas activity,” (Aguilar 2012h [Online]). The pollutants included butane, ethane, and propane. Marie said: “The NOAA study is one of the main reasons we pushed for a moratorium” and “It did alarm the town board, most of them voted for a moratorium.” Despite the study, claims were made that the chemicals found in Erie’s air were not necessarily harmful and that the air was still safe to breathe (Aguilar 2012g [Online]). Marie discussed some of the rebuttals she heard:

The oil and gas industry tried to say it’s the I-25 corridor or it’s all of our vehicles. Honestly, this is what I was told once, ‘maybe it’s all of the vehicles that are idling at Starbucks when you’re going through the drive-through to get your coffee.’

With a moratorium on new oil and gas drilling was passed, Erie Rising gained its first large accomplishment. However, Marie revealed that some politicians had ulterior motives other

than health concerns. She stated: “Basically the only reason our mayor voted for the moratorium was because he needed to be reelected in April [2012].” The strategy after the moratorium was “To continue educating the public and research exactly what’s going on in our community. (Marie 2013)

As the moratorium on new drilling continued, the activists of Erie Rising tried to keep up the pressure on their local officials. However, things did not turn out as well as the activists hoped. At the end of August 2012 the trustees decided to let the moratorium expire and institute in its place what some called ‘regulations.’ This is a loose use of the term; what passed were “agreements with energy producers” (Aguilar 2012c [Online]). These agreements are called memoranda of understanding (MOU) that function as a voluntary contract both parties agree to follow. In the case of Erie, the energy companies agreed to try to follow stricter conditions than the state regulations when drilling in Erie. Yet most of these conditions were less strict than the regulations passed in Longmont or Boulder County.

There was significant disappointment with this development from Erie Rising:

Well obviously the mayor and the board of trustees drafted the MOUs because they knew that they weren’t going to extend the moratorium...Really they don’t mean anything at all. I mean they didn’t even go through the proper steps to even make it regulations. It’s not a memorandum of regulations; it’s a memorandum of understanding. (Marie 2013)

At the trustees meeting discussing the MOUs, there was plenty of opposition to the proposal. At the meeting, “dozens of residents packed town hall to plead with their elected leaders not to sign off on the agreements and to instead extend the moratorium” (Aguilar 2012c [Online]). Several of the trustees seemed to prefer the idea of extending the moratorium further due to ongoing studies of air quality impacts from oil and gas drilling in Erie. Yet at the end of the meeting the MOUs passed the board of trustees by a vote of six to one.

The town board's rejection of regulations on fracking was a blow to Erie Rising and led to a reassessment of strategy. As Marie said:

As a representative of Erie Rising, I can say that we know we're not going to get anywhere with our town board so we're just going to keep doing what we need to do. They've allowed it and there are already 300 something wells inside the city limits.

This disagreement with the town board meant that the members of Erie Rising had shifted their efforts to influencing state legislators. Furthermore, they were now working with state-wide and national organizations to fight against fracking. Erie Rising also applied for grants to be able to study the air quality in Erie and provide more data on the pollution from natural gas development. Marie stated that most discussions about fracking on the town board came down to a 4 to 3 vote for fracking.

Due to the lack of headway that Erie Rising was able to achieve in its battle against fracking, Marie and I discussed the challenges Erie faced. She was quite certain of the main impediments:

I think that our town board and our mayor was one of the biggest roadblocks to us. I mean our mayor was against us from day one. He wouldn't even listen to us. We would have 20 people from the community go and speak, so there would be over an hour of public comment and he spent the whole time either looking at his phone or looking at his computer screen.

Furthermore, according to Marie, "the rumor is that [the mayor] wants to be a Weld County Commissioner and Weld County loves oil and gas." The mayor continues to actively oppose Erie Rising.

Another challenge that Erie Rising faced was that Erie already had wells fracked and drilled by the time Erie Rising arose. Marie agreed that this was a significant challenge:

I think that it did. I think that some people definitely thought well these have been here for six years...I think that anything that happens with any type of industrial or corporate organization is they start doing something before you know what they're doing...So they came in and they just started drilling...so then obviously people thought 'oh this is fine.'

In many ways the wells in Erie and their negative effects were additional motivations for others around the county to act. Some even went so far as to use the analogy that Erie was the canary in the coal mine for Boulder County due to the studies of air pollution. Quixote related another challenge that Erie faced: “It’s statutory, so they had a big problem to begin with.” Since Erie is not a home rule town like Longmont, activists could not start a ballot initiative to ban fracking. In contrast to the many factors that came together to assist Our Longmont in passing a ban, many factors came together that impeded the ability of Erie Rising to pass a ban.

Boulder County

The development of the anti-fracking movement in Boulder County was complicated and marked by disagreements. Fracking became an issue in late 2011 and early 2012. Since 2012 was an election year, the issue of fracking quickly became an issue in the Boulder County Commissioner election. As more people became aware of fracking, more action began to occur around the issue. This included the formation of an activist group, Boulder County Citizens for Community Rights (BoCoCCR), protests against fracking, and the formation of networks of activists against fracking.

Heide, one of the activists, commented how it took BoCoCCR “a while to figure out who we were and that wasn’t until last spring [2012] that we figured out what our organizational structure would be and the name of our group.” As BoCoCCR progressed and grew, it transitioned from an ad-hoc group, similar to Longmont ROAR, into a more structured non-profit corporation with legal protections (Heide 2013).

With the formation of BoCoCCR as an organization, a steering committee was chosen by several members. Heide explained:

It's just that we were on the same page; we were consistently showing up to meetings, we liked each other, and communicated well with each other...I think the group was just so relieved to have somebody take it that they're like ok yes, we nominate you guys to do it.

Meanwhile, Lucy was getting more involved in the issue, although not through any group. She explained the limitations of going solo and her hopes:

I prefer to be on my own and not necessarily affiliated with the group but there's limitations to that...So it's an interesting thing and I wish that more people felt empowered to apply themselves as citizens and not to feel like they have to be a part of a group to do that...I would like to empower more people and I think that groups can actually diminish our effectiveness as citizens.

Yet this desire to be more of a lone wolf did not mean that Lucy was not in contact with other activists. In fact, Lucy had an extensive network of contacts (especially a large email list), albeit contacts that were not organized into a formal or informal group structure. Her goal and strategy was: "trying to grow a resistance movement. So that just takes the form of going out and connecting, putting it out there and you'll attract people to you that are aligned that way" (Lucy 2013). In many ways, she seemed to have found success in that strategy.

On February 2, 2012 Boulder County imposed a moratorium on new oil and gas permits by a unanimous vote: "The six-month moratorium...in place until Aug. 2 is intended to give the county staff time to study the adequacy of Boulder County's current land use regulations" (Fryar 2012d [Online]). The imposition of the moratorium came in response to increased applications for drilling permits and "growing public concern, county-wide, statewide and nationwide, over hydraulic fracturing operations" (Boulder County Planning Commission 2012:3).

The passage of the moratorium was a victory, but other issues arose that would create conflict. The fundamental problem activists faced is that Colorado counties "don't have the legal ability to ban. We don't have local control on this issue" (Heide 2013). Without local control there was no clear path to instituting a ban unless the Commissioners took the illegal action of contradicting the state. This problem, as in Longmont, led to conflicts over tactics and strategy

for the Boulder County anti-fracking movement. Lucy and Heide represented different sides of that conflict.

The inability to achieve a ban was a large conundrum for BoCoCCR. Eventually they “decided to work with the commissioners to make the regulations a) as tough as possible and b) take as long as possible to get them done” (Heide 2013). The position of BoCoCCR was to try to work within the system and strengthen the regulations first before looking toward a ban, while also building up credibility with local elected officials. However, not every activist in Boulder County agreed with this strategy, including Lucy and many of the contacts in her network. She told me: “We don’t think that we’re going to make progress legislatively.” Lucy and others felt that no regulations would protect the citizens of Boulder County and those opposed to fracking wanted a ban anyway, so that was the path that should be pursued.

Nevertheless, new regulations were in the process of being drafted in Boulder County and the county government took many hours of public comment. After the Boulder County Planning Commission considered the issues, it unveiled its first set of draft regulations. During the process of taking public comment on the regulations, the commissioners formally adopted a six month extension of the moratorium in April 2012 (Fryar 2012b [Online]). Throughout the summer the planning commission studied the issue and by September had unveiled a draft of new regulations (Fryar 2012f [Online]). The commission continued to take public comment, and the message received from the public was overwhelmingly similar: ban fracking. At every public comment session I attended the speakers against fracking outnumbered the people for fracking by huge margins. Oftentimes no one would speak in favor of fracking.

Along with the calls to ban fracking there were many citizens who critiqued the regulations and suggested ways they could be strengthened. Members of BoCoCCR combed

through the regulations looking for what could be improved. The result of such efforts was that the planning commission, in several public meetings with county staff, “asked for more restrictive regulations on oil and gas drilling” (Bounds 2012 [Online]). Thus, the planning commission sent regulations to the county commissioners that were quite strong. Due to the complexity of the issue of formulating regulations, the planning commission requested another extension of the moratorium, a request that would later be fulfilled in January 2013 (Fryar 2012e [Online]). After the planning commission was satisfied that they had constructed the regulations as best as they could, they sent the draft regulations to the county commissioners in late 2012.

Despite progress against fracking in the actions of the local government of Boulder County, there were protests that occurred to keep up the pressure on fracking. One notable protest against fracking occurred in August 2012 and was organized by a coalition of groups, including Occupy Boulder. Declan said the protestors “were at the drilling site on Niwot Road with signs, banners. Some of us were willing to get arrested; we didn’t because a lot of people showed up with their children.” Photographs and stories of the protest were subsequently seen in the local news, showing a high turnout of protestors. However, he related that “even before arrived at the site, word had got out and the police were waiting for us when we arrived. They were going to make sure we did not get on that property” (Declan 2012). Disagreements between law enforcement and activists against fracking would be seen further in protests against fracking.

Additionally, Boulder County government meetings to discuss fracking had always been more contentious and more passionate than in other towns, such as Longmont and Lafayette. Yet it was when the commissioners began to consider the regulations that things escalated. For several weeks the commissioners took comment on the regulations from the public and the industry. However, many in the public remained adamantly opposed to fracking and demanded a

ban. Upon the passage of the ban in Longmont these demands became much more realistic and a large contingent of the public urged the commissioners to ban fracking regardless of the advice of their lawyers. As Lucy told me, “There were those of us that wanted the county commissioners to take a stand.” In these activist circles there was a feeling that no elected official would take responsibility for the issues and that the county was just passing the buck up to the state legislature. The position of the county was frustrating to many people and passions would soon reach a new high.

The December 4, 2012 Boulder County Commissioners’ meeting was the first meeting to see widespread direct action. After the commissioners entered the room and sat down a mic-check³ was initiated and several people recited pre-written speeches. The commissioners attempted to call the room to order but were ignored, and they subsequently left the room. The demonstrators disrupted the “meeting on oil and gas regulations for nearly half an hour, chanting their opposition to that drilling technique and demanding the commissioners resign if they won't ban hydraulic fracturing in unincorporated Boulder County” (Fryar 2012 [Online]). After several adults had finished their speeches, several children read speeches as well. After these speeches, and with the encouragement of several adults, the children went to the commissioners’ seats, sat in their chairs, and called for a ban on fracking. A police officer then escorted the children back to the audience and finally the commissioners returned and called the meeting to order. The commissioners took turns speaking about how the disruption of the meeting was unacceptable and stated that another such disruption would lead to the cancellation of the meeting.

³ A mic-check is a tactic that involves coordinated group interrupting a speaker in a position of power. It begins with one person yelling a sentence that the group then repeats. These statements can continue for some time and with multiple speakers, in this case for almost 30 minutes. The mic-check is derived from the human microphone technique, where a person’s words are amplified without technology by an audience’s repetition of the words.

During my research this was the local government meeting with the most public participation. Lucy provided more information about the participants and goals of direct action, as well as a perspective on the commissioners' demands for civility:

You know we went in and we did the mic-check...you don't go into something like that lightly, it took a lot of planning, and it takes courage for the people who stood up and led the mic-check...And that was a mom who is a substitute teacher, it was a dad from Louisville, it was a woman who lives in Niwot who is an aunty to a lot of children in Boulder County. I mean these are upstanding citizens and we felt like that was really successful because it really raised the awareness in the community about the issue. And then the County Commissioners came back and said...we need to be respectful and courteous. And our response is really that is pretty ridiculous. You're asking us to allow the oil and gas industry to respectfully and courteously poison our children.

Public comment was eventually taken and things were calmer until a representative spoke from the energy company Encana. During her speech members of the audience heckled her, eventually shouting her down when she attempted to finish her speech after end of her allotted time. As she left the building "a few of the anti-fracking activists trailed [the representative] to her parked car outside the courthouse...but a pair of county security officers accompanied her" (Fryar 2012 [Online]). I am not certain what happened outside the courthouse because I was not an eyewitness but accusations of misconduct were leveled. The industry representative claimed that "protesters followed her, blocked the path of her car and pounded on her windows" (Rubino 2012a [Online]). Lucy witnessed the alleged misconduct:

I filmed it...She was never physically threatened. She was escorted out of the courthouse with two police officers and a security guard. Obviously we weren't breaking the law because nothing happened. It all went down in front of two police officers and they didn't do anything. They escorted her to her car and there were a handful of people that followed, who told her she wasn't welcome in our community and stuff like that. Two of those people were fathers. There was a father of young children in Lafayette and a father from out east whose family is actually being poisoned by Encana. He reported a leak that was happening at a well near his property and they came out and they found that there was really something going on with it. He actually has a case against Encana. We understand that when a parent's children are being poisoned, they're going to get a little upset about it and things are going to get a little heated...So you know kind of it was unfortunate that it happened because it distracted from our message of defending your

community and it turned some people off but I think it was a lesson for people not to let that kind of thing happen because it distracts from what you're trying to accomplish.

Over the next several days a debate raged over the disruption of the meeting and the heckling of the industry representative. The debate split many activists into those who were supportive of escalating the pressure on the commissioners through direct action and those who wished to continue to lobby the commissioners. Lucy and others supportive of direct action thought it was necessary to escalate the pressure. Heide was leery of the direct actions because she felt the commissioners were doing the best they could under the law, although she supported the passion and anger of those who participated in the action.

The story of the disruption and heckling of the industry representative made the headlines of many news organizations that week. The oil and gas industry promoted it as a story of intimidation (see Cooke 2012, Wiedenbeck 2012), leading to more disapproval of the action.

Heide thought:

The anger and frustration and passion as a bit misdirected. In some ways it did a disservice to the movement because the message got lost and just the behavior got reported and it did not put the movement in a good light and part of what we're trying to do is get more people to join because we need numbers and we need people, large numbers of people coming out against this.

The worry of many opposed to the direct action was that it would damage the credibility of activists against fracking and turn people off interested in joining anti-fracking groups. While Heide disliked the disruption, she also saw a positive side: "It did set up this good cop, bad cop thing...So in the long run I don't think it was as terrible as we thought it was that week." Elected officials were more eager to work with BoCoCCR once they realized it was not responsible for the disruption.

The county commissioners decried what they called bullying and harassment at the meeting in a public statement and "announced a new security plan for future meetings" (Rubino

2012a [Online]). As the fallout from the direct action began to accumulate there was a push back from the participants of direct action. Lucy explained her perspective on how a schism among Boulder County activists led to the movement toward direct action:

A lot of people jumped off board from BoCoCCR because, like Longmont, there was a rift where they really took it in the direction of regulation and then there were people who weren't going along with that.

During the interview with Lucy, I inquired about the direct action and the various responses to its occurrence. She stated:

When we did that civil disobedience at the county commissioners... We knew there would be this reaction. People really tried to marginalize us and actually they didn't know where it came from and we planned it that way actually.

Due to the use of a mic-check in the direct action, many people speculated that the direct action was led by members of the Occupy movement. Lucy pushed back against this idea, saying: "It was the people who led the mic-check, it wasn't Occupy... they tried to say it was outsiders who came into the community, it wasn't.... they tried to say we were radicals, and extremists." She made it clear in the interview that the action was the product of anti-fracking activists from Boulder County and was planned in Boulder.

In the week following the disrupted meeting, the Boulder County Sheriff confirmed that deputies would be providing security at the next meeting, a move some activists felt was intended to silence their voice (Rubino 2012b [Online]). For the meeting 20 officers were involved in security duties (Rubino 2012c [Online]). By my own count at the next meeting, I saw 12 uniformed officers in public view and spread throughout the building and surrounding areas. Yet attendees still engaged in direct action by wearing tape over their mouths or on their clothes. As some of the activists stated, this was to symbolize their feeling of being silenced. It was at this meeting that "the commissioners voted in favor of rules that will allow fracking on unincorporated county lands" (Rubino 2012c [Online]).

The passage of the regulations, while not unexpected, was not the outcome many activists had hoped. Nevertheless, good news came in January 2013 when the county commissioners voted to extend the moratorium on oil and gas drilling until June 2013. This small victory was satisfying to many activists because it gave them more time to plan their next moves. The county stated that it needed to extend the moratorium to train staff about the regulations and complete a transportation study assessing fees that the county would charge the energy industry for using county roads. As these events occurred, BoCoCCR decided to abandon regular meetings in order to focus more on working against fracking. Heide stated this was because BoCoCCR experienced inconsistent attendance at these meetings from all but a few people, which with the regular appearance of new people meant that little strategic progress was made during weekly group meetings.

I asked both Heide and Lucy about the future of the anti-fracking movement and fracking in Boulder County and they offered intriguing perspectives. Heide discussed the possibility of being sued over the regulation and incremental extensions of the moratorium. Lucy believed that the future held more direct action, due to the refusal of Boulder County officials to consider a ban: “We’re going to let fracking happen in our community or we’re going to do something about it.”

While the Boulder County Commissioners were working on the implementation of new regulations, they were also working to persuade state legislators to give them more local control over oil and gas development and the possibility of a legal ban. Whether this strategy will be effective remains to be seen. Heide reflected on her experience with anti-fracking groups:

Well, I definitely think for all of our groups the longer term goal is first of all we would like to ban fracking in all of Colorado and eventually I think we would love a country-wide, a national ban...I don't know if we'll ever get there or not so you kind of have to keep your eye on the immediate prize. So you get one little moratorium in place, yay

good day, you get another ban in place, you educate a few more people and you know worst case scenario you at least get some better regulations in place so that some of the really egregious stuff isn't happening or at least is slowing down enough that we can figure out fixes for it before everybody is dead.

Lafayette

As the threat of fracking expanded in Boulder County, activists formed a group called East Boulder County United, encompassing the town of Lafayette. In late July 2012, “an anti-fracking group that recently sprouted up in Lafayette came before the city council on Wednesday night and asked it to place an immediate moratorium on any future hydraulic fracturing in town,” (Aguilar 2012a [Online]). In addition, Aguilar (2012a [Online]) related how the group desired the city to initiate an air quality study and a health impact study on Lafayette. By the end of that meeting, “the city council made no move on a moratorium but did agree to hold a workshop on the issue,” (Aguilar 2012a [Online]). I interviewed two activists from this group, Christopher and David, about the actions of the group and its goals. Christopher first heard about the group through Facebook and then got more involved, while David came to the group through people he met at local government meetings.

East Boulder County United demanded a moratorium despite the fact that there were no drilling operations or well permits then filed with Lafayette for new wells (Aguilar 2012a [Online]). Members of the group stated that they wanted to preempt any possible new drilling, which is a possibility since the city lies atop the Wattenberg gas field. As of August 2012, there were 14 wells that had been drilled years before and ten abandoned wells within the city limits (City of Lafayette 2012:6). Less than two months after East Boulder County United demanded a moratorium on new oil and gas drilling the city council pursued just such a proposal. Aguilar (2012e [Online]) reported how “the city's elected leaders agreed to...place a moratorium on new oil and gas drilling in the city.” What was “at the heart of the discussion was what changes might

need to be made to Lafayette's regulations on drilling, which haven't been revised since 1994,” (Aguilar 2012e [Online]).

After the passage of the moratorium, events were more muted. Since no applications for permits to drill were filed, there was no immediate threat of fracking. Another factor was that the efforts in Longmont and Boulder County required more immediate action, and many activists from Lafayette came to these other municipalities to assist. Nevertheless, the strategy was formed for a campaign to place a ban before the voters in the next Lafayette election. As Christopher explained to me:

Our purpose, or goal, is to get a measure passed in Lafayette that bans fracking in city limits whether that's in conflict with state law or not... And that's going to be our goal in 2013 is making that happen and getting it on the ballot in Lafayette, regardless of what the city council wants to do.

Part of the strategy was to keep up the pressure on the Lafayette City Council to take the issue of fracking seriously. Christopher said: “We're trying to go to every meeting now so that we have a presence there and they expect to see us and get to know us... They just need to be shown the facts of the situation.” This strategy culminated in early March 2013 when East Boulder County United presented “a petition with nearly 1,000 signatures, urging Lafayette City Council to pass a temporary moratorium on drilling within city limits and also to put a question on this year's ballot through which residents could determine the future of oil and gas regulations in their community” (Pike 2013 [Online]). Thus, Lafayette will try to follow Longmont and be the second city in Boulder County to ban fracking.

Both David and Christopher told me that East Boulder County United would also like to see a state-wide ban on fracking but each thought it unlikely in the current political climate. However, they thought that more scientific studies on fracking would reveal more risks and dangers, thereby helping to get fracking banned. When I asked David what is next for East

Boulder County United he said it involved keeping pressure on the city council and continuing to educate people in Lafayette.

Colorado

In Colorado there were many events that occurred as the movement against fracking spread throughout the state. The most impressive advance was the passage of a ban on fracking by the city of Fort Collins. A statewide coalition called Protect Our Colorado was also formed, which many activists hoped will be able to create state-wide change. Nevertheless, struggles about tactics and goals have been present as the anti-fracking movement in Colorado has grown. Lucy related how in addition to the success for “this nascent movement developing in Colorado...there’s been a lot of maneuvering and power struggles and personality clashes happening.” She also discussed how these conflicts were frustrating but that from her understanding it was not something unique. Rather, conflict was something all movements go through. She noted one particularly frustrating thing about the variety of goals for her:

There was a fracktivist⁴ summit in Denver this summer and there were fracktivists from all over the state who got together in the Mercury Café in Denver. There was a real rift between people who know that you’re not going to get anywhere going through your city council and people who were just joining the struggle and thought that the way to go was through your city council. And there was actually this mutiny at this meeting because as the meeting went on it became clear that there were people who wanted through the political process or the legal process and then there were people who know that going through the political process is a complete dead end. So several people actually walked out of that summit.

In much the same way that Lucy and others felt that regulations in Boulder County were ineffective, there are people across the state that have strategies that do not necessarily dovetail

⁴ Fracktivist is a portmanteau of fracking and activist. This term has become more popular among activists against fracking as a way of referring to themselves and differentiating themselves from other activists.

with the tactics of the state-wide coalition. So the possibility remains of more conflict between groups on the state-wide level.

Mike, who was involved in the formation of the state-wide coalition, discussed the goals for Protect Our Colorado:

The movement has got to get a lot bigger than it is. We're going to need to go after the governor in the real way...The victory in Longmont has really opened up the opportunity to do this...the issue with fracking is not going to be solved at the city or county level. These local battles are really important but at the end of the day going up against a state structure that is in bed with the oil and gas industry and as long as they're promoting Halliburton coming and fracking in the state that's going to continue. So we really need to take that on. The way to do that involves building out a state-wide strategy and one that really holds Governor Hickenlooper accountable for his role in being cheerleader in chief of the fracking industry and so that's what we're looking to do.

The actions and evolution of this state-wide coalition of anti-fracking groups will be an interesting development to follow in the future.

In the meantime Fort Collins had become a hotbed of anti-fracking activity. It began in December 2012 when the city council passed a moratorium, “The 6-0 vote followed overwhelming citizen outcry for a moratorium, if not an outright ban” (Malone 2012 [Online]). Leading the effort to fight against fracking was a group called Frack Free Fort Collins. Their cause gained momentum when, in mid-February, “About 2,000 barrels—84,000 gallons—of fracking flowback water gushed from a PDC Energy oil well for 30 hours...east of Fort Collins” (Magill 2013a [Online]). After the massive leak, the city council began to consider implementing a ban. Yet there was pushback with a petition presented by COGA and signed by 55 businesses supporting fracking. Soon afterwards though, “Twenty-two of 55 businesses on the petition said...they were inaccurately represented as part of a coalition of Northern Colorado businesses fighting the fracking ban” (Magill 2013c [Online]). Subsequently, COGA stated it wanted the petition to be withdrawn even though it had already been submitted to the city council to become part of its public record. These setbacks for the oil and gas industry in Fort

Collins were topped off when the city council passed a ban on fracking at the beginning of March 2013. This banning by a second city was a signal that opponents of fracking had the momentum in Colorado. As usual, during the entire process the state and the oil and gas industry threatened to sue Fort Collins over any ban passed.

However, in a reversal announced on March 6, “Gov. John Hickenlooper said the state may be willing to work with cities banning oil and gas development within city limits if they can find a way to compensate mineral rights owners” (Magill 2013b [Online]). The state of Colorado opened itself up for the first time to the possibility of allowing municipalities to ban fracking on the condition that mineral rights owners were compensated. Hickenlooper even proposed the idea of the state helping local governments out with the costs of compensating mineral rights

owners. This shift into acknowledging the possibility fracking bans is extremely significant because it is the culmination of several other shifts away from that state’s earlier hard-line pro-fracking position. Perhaps this shift was because Governor Hickenlooper got tired of anti-fr



Fort Collins area fracking leak
Source: The Coloradoan

or because the possibility of lawsuits against popular fracking bans in multiple cities was an alarming prospect. It remains to be seen if there will be action on such a proposal and what that would mean for the ongoing lawsuits against Longmont’s regulations and fracking ban.

In response to widespread citizen concerns and activist pressure, the COGCC proposed increased regulations of oil and gas in the state. This rule-making process was highly contentious at each stage. For example, at the beginning of the year, Finley (2013c [Online]) reported: “Oil and gas industry lobbyists are maneuvering to block Coloradans who live near drill sites from

talking about their experiences during a rule-making hearing next week.” Earlier in the year, the COGCC implemented a stronger water testing rule for oil and gas wells. Yet the “proposed new rule to protect water from expanding oil and gas operations would not apply to more than 25 percent of wells or to the tanks, pipelines and other production facilities that are frequent sources of leaks” (Finley 2013b [Online]). These loopholes meant that the new rule did not satisfy environmentalists, and the COGCC would also face opposition from advocates of local control.

A new setback rule was proposed that would have made all new wells drilled be at least 500 feet away from occupied structures. Yet these rules were met with widespread backlash from areas like Boulder County that desired larger setbacks to areas like Weld County that desired smaller setbacks. Finley (2013a [Online]) stated that “Buffeted from all sides — towns and counties demanding control of land-use decisions, industry leaders asking state officials to call the shots — the Colorado Oil and Gas Conservation Commission delayed its final vote.” In a somewhat ironic situation, both pro-fracking Weld County and anti-fracking Boulder County were united in demanding local control to regulate fracking. With the delay of the COGCC’s final vote on the proposed setback rules, we will have to wait to see if state regulations increases.

*“Unless we change direction, we are likely to end up where we are headed.”
–Proverb (source unknown, usually attributed as Chinese)*

Social Capital

When my research began it was driven by one question: what makes for successful activism? This is a difficult question to answer. The interviews with various activists made this clear. In discussing how successful activism happens, Mike told me that “there’s no silver bullet.” A similar point was made by Lucy: “You know everyone is looking for an easy solution and there’s not one.” Although there is no simple rule for successful activism that works on all occasions, there are lessons on what can help make activism successful.

I found the concept of social capital extremely useful in understanding successful activism and community-based organizations. Not only does social capital help describe the formation and structuring of community-based organizations, it is also helpful in understanding how they exert power. The concept of social capital is defined by Bourdieu (1986 [Online]):

Social capital is the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition – or in other words, to membership in a group – which provides each of its members with the backing of the collectivity-owned capital, a ‘credential’ which entitles them to credit, in the various senses of the word.

Social capital can also be described as forming from social obligations, otherwise defined as social connections. As Mike commented on community organizing, “Organizing is fundamentally about relationships.” Relationships are social connections, which create networks of linked people. In this way community organizing, vital to social activism, is at its core about creating social capital.

Social capital also helps explain the importance of email lists to activist organizations. Email lists are often a core resource, without which no organization can exist. The reason for this is because an email list is a resource of connection; it is a manifestation social capital. Thus, in

Longmont when the email list of Longmont ROAR was transferred to Our Longmont, there was also a transfer of the social capital of Longmont ROAR.

It is important to note that as groups grow and increase membership they usually increase their accumulation of social capital. Bourdieu (1986 [Online]) discussed how such social capital is accumulated:

The volume of the social capital possessed by a given agent thus depends on the size of the network of connections he can effectively mobilize and on the volume of the capital (economic, cultural or symbolic) possessed in his own right by each of those to whom he is connected.

As a group grows in size there is usually a direct increase in social capital, since social connections increase with group size. Parallel to this increase, social capital also increases from the added individual networks of social connections brought when a person joins a group. Take the example of the initial mobilization of Longmont citizens against the threat of fracking. Quixote stated that when she first heard of the threat of oil and gas drilling she “sent out an all points bulletin to a lot of the people in my personal network. The alarm went off for several people who also sent it out to their network.” This can help explain the formation of groups as well because personal networks of social connections inevitably overlap, thus providing a way for like-minded people to come into contact.

Social capital is not a static characteristic but a dynamic quality. The dynamism of social capital in growth and reproduction, “presupposes an unceasing effort of sociability, a continuous series of exchanges in which recognition is endlessly affirmed and reaffirmed” (Bourdieu 1986 [Online]). Connections between group members must be maintained if the accumulation of social capital in an organization is to continue. Furthermore, accumulated social capital degrades if connections and social interaction are discontinued by members of a group. This is also a reason that social capital may not necessarily increase as a group becomes larger. Larger groups

can sometimes bring out fissures or conflicts that can inhibit the accumulation of social capital, which was seen in the splits many anti-fracking groups experienced as they grew larger.

One of the fundamental characteristics of community-based organizations is their accumulation of social capital. Since social capital accumulates from the gathering of individuals, the influence of community-based organizations comes in large part from their total number of members. This point would explain why at several of the meetings I attended a point was made to request attendees to formally join the group, thereby increasing the number of registered members. The immediate effect would be an amplification of the group's influence over elected officials during moments of lobbying, which was the stated goal of increasing membership at several meetings.

One of the essential aspects of social capital is that if social capital is to be used by a group there must be both limitations on the group as well as each representative of the group. Bourdieu (1986 [Online]) states:

If the internal competition for the monopoly of legitimate representation of the group is not to threaten the conservation and accumulation of the capital which is the basis of the group, the members of the group must regulate the conditions of access to the right to declare oneself a member of the group and, above all, to set oneself up as a representative (delegate, plenipotentiary, spokesman, etc.) of the whole group, thereby committing the social capital of the whole group.

A group needs boundaries if it is going to exert and accumulate social capital because without boundaries a group is not distinguished from the community at large. The necessity of a representative is vitally important so that there can be a channel to legitimately exert the social capital of the group. The necessity of a representative for a group is such because groups only really exist through representation in the social world (Bourdieu 1986 [Online]). A representative invested with the social capital of a group allows efficient access to the group as well as a channel for actions from the group.

Implicit in the necessity of a group to have boundaries and to set up a representative is the existence of a decision-making structure. Without a decision-making structure, a group will not be able to delineate boundaries or create representation. Thus, a group without a decision-making structure will be handicapped in its accumulation of social capital. This is a point supported by this statement from my research:

So the group needs to have a really clear decision-making structure. Whether that's a consensus based model or whether that's like a hierarchical voting model there needs to be real clear way that they say yes we're doing this or no we're not doing this and everybody needs to be ok with that. That's the main thing that keeps groups having meetings for 6 months, like hour long meetings and nothing really happens because they don't have a clear decision making process. (Mike 2013)

Many of the activists felt that the institution of a clear decision-making body was a turning point in their organizations, such as the creation of the steering committee and transition to Our Longmont from Longmont ROAR. Heide paralleled the analysis of Mike saying: “You have to have a central organizing body, whatever that is. Somebody has to be calling the shots.” She pointed to the institution of a steering committee in BoCoCCR as a turning point in the effectiveness of the organization. A clear decision-making process seems to increase the efficiency of the interactions and actions by a group.

A more nuanced understanding of social capital and community-based organizations is necessary when those organizations are part of a social movement. Social movements are fundamentally about creating change, which means that social movements have goals. The accumulation of social capital is necessary for social movements to achieve goals. Additionally, if there is a path for social movements to achieve their goals, then there is a way for accumulated social capital to be exerted. However, the lack of such a path to achieve the goals of a social movement will inhibit its ability to use accumulated social capital. Mike stated: “I think that part of what has happened here in Boulder County in recent months...like a lot of infighting...is

because there's no clear path to victory.” Using the example of the groups in Boulder County, it seems likely that when there is no path for a social movement to achieve its goals the possibility of conflict increases. The lack of a clear path to a goal can be a stumbling block for activist organizations because it frustrates the ability of groups to achieve victories. In the case of the activists in Boulder County, everyone I spoke with wanted to ban fracking; they just had different ideas about how to work toward a ban on fracking. Furthermore, some activists’ perceptions of the goals of other activists were sometimes inaccurate, such as the view that BoCoCCR solely wanted increased regulation. These factors present challenges but dialogue on the common goals of activists could help to ameliorate some of the conflict that occurred in Boulder County.

The victory of Longmont in passing Question 300 was due in large part to their skills as well as the failure of the opposition. One explanation for the opposition’s defeat is that they failed to accumulate social capital within Longmont. Since Main Street Longmont was financed entirely by donors from outside Longmont, it was unable to form connections within the community. Furthermore, the dissemination of this fact (helped by Our Longmont) acted to prevent accumulation of social capital by the opposition. The failure of the oil and gas industry to accumulate significant social capital turned the issue of fracking in Longmont into a ‘not in my backyard’ (NIMBY) campaign.

Power from Social Capital

One of the key aspects of social movements in general and of the ones that I researched is how they use power to create change. One way of considering how community-based organizations try to create change is through accumulating power. The accumulation of social capital can also be considered an accumulation of power if one accepts that entities with more

social capital have more influence and thus are able to exert more power. This notion of power is not theorized extensively and relies heavily on colloquial notions of power, authority, and domination.

Several of the activists thought their groups needed to accumulate and use power to achieve their goals. Mike described a common-sense notion of power:

You have to build power to win. The definition of power is just getting someone to do something you want them to do. Typically in our democratic system there are a few forms of power. There are votes, there's money, you can sue...So I like to think of the system as a scale, our democratic system, and in the center, the fulcrum on the scale, is the elected official. And each side of the scale, one side the corporations are going to put a lot of money on it and on the other side people are going to put a lot of votes. And the question is who piles more power on the scale to win...So our job is to go out and build power, which usually involves recruiting mass amounts of people and using all of the tools in the toolbox in terms of tactics, on media or events, rallies.

Since my focus in this analysis is on social capital, utilizing a common-sense concept of power will be useful to keep social capital at the forefront of the analysis. This common-sense notion of power, characterized by domination and resistance, can be analyzed as a subsidiary of social capital more easily than a heavily theorized concept of power. Therefore, I will use a notion of power that results from the accumulation and use of social capital by individuals and groups.

The connection between power and social capital cannot be understated because the social capital of anti-fracking organizations directly influenced their ability to exert power against opposing entities. If “the whole idea behind power is numbers,” (Mike 2013) then power is a consequent of increased social capital. Thus a large part of why community-based organizations seek to increase their membership is not just that it increases their social capital, but that it also increases their power. The influence of social capital can also be seen in the campaign to pass Question 300 in Longmont. Since Our Longmont had accumulated significant social capital in the community, it was able to have much greater influence and therefore power

in the town. The oil and gas industry, which did not have as large an accumulation of social capital, was not able to utilize as much power.

Another important aspect of social movements is how they challenge the legitimacy of established structures of power. In Boulder County the anti-fracking movement challenged the legitimacy of the power held by the state government and hydrocarbon industries. The reasons for these challenges by activists were because the established structures of power were unresponsive and/or did not satisfy citizen demands (in the case of local and state governments) or actively impeded citizen demands (in the case of the oil and gas industry). When Our Longmont circumvented the city council and initiated a campaign for a ban on the ballot, they were rejecting the authority of the city government. The established structures of power in Colorado expected widespread obedience from the citizens of Boulder County. Yet the activists of the county mobilized networks of individuals in order to achieve their goals, despite opposition from established power structures.

In Longmont, the activists of Our Longmont managed to challenge and win significant victories against the power of almost every entity opposing their agenda. In the process, the legitimacy of these entities to hold power was challenged, often resulting in a loss of legitimacy. As I mentioned before, Longmont's city council had their power challenged when Our Longmont initiated a ban through the ballot box despite the opposition of the city council to such an action. The victory of Our Longmont in passing the ban not only showed the power they had accumulated but also concentrated more power in their organization. This was because the ban's passage delegitimized some of the power held by the city council.

The encounters between the state, as well as the oil and gas industry, and Our Longmont similarly resulted in increased power for Our Longmont and the delegitimization of some of

these entities' power. In the case of the conflicts between Longmont activists and Colorado, Our Longmont undoubtedly emerged the victor. The regulations passed by Longmont were an exertion of power independent of the state and the state's response with a lawsuit was meant to enforce the obedience of Longmont to the state's power. However, Our Longmont defied the state's punitive actions by initiating the ballot campaign for a ban. The success of the ban's passage proved to be so impactful to the state that it refused to follow through on its threats to sue Longmont again and delegated the task to the oil and gas industry. The encounters between Our Longmont and the petroleum industry were also characterized by industry threats of punitive actions and defiance from Our Longmont. The success of Our Longmont has weakened the standing of both the industry and the state, thereby concentrating more power (and thus influence) in the hands of the activists. The passage of a ban in Fort Collins functioned similarly to Longmont's ban in that it defied the power of the state. The subsequent softening of the state's position on suing cities thus seems to be an attempt by the state to prevent further delegitimization of its power.

Communication and Social Capital

Communication is fundamentally important to social movements and community-based organizations. This includes communication between members as well as communication with the public and other organizations. In this section, I will discuss the influence of communication and various communication strategies on the success of activist groups as well as communication by others about activist groups. There were several factors integral to effective communication, which included messaging and the need to educate the public and politicians. Communication is important because it influences the way community-based organizations accumulate social capital and thus the power that they are able to exert. Ineffective communication impedes the

ability of organizations to form more connections, thus impeding the accumulation of social capital and a group's ability to exert power.

Several different activists pointed to the messaging strategy of Our Longmont as one of the reasons for their success. Activist organizations inevitably have to interact with the public, especially in an election campaign where they must gain public support. Thus, there is a strategy behind the way the organization communicates with the public. Our Longmont had such a strategy as Carol stressed:

I think one of the things we should get the most credit for is the clarity of our messaging. We realized that this is a relatively conservative community or at least it's half and half. And if we tried to do this on environmental grounds or anything that seems green as part of our message it wouldn't fly here...So we stressed health, safety, and property values. And those were things that are non-partisan.

The goal of public communication from a community-based organization is to increase public support and involvement, which means increase social capital. The activists of Our Longmont realized that an environmentally focused message from the group would not have wide community support and therefore would impede the group's ability to increase their social capital. So the message of health, safety, and property values that Our Longmont broadcast was an intentional attempt to increase their accumulation of social capital. Part of their success in the campaign and the organization can be attributed to this message as well the discipline of their members in sticking to that message.

Additionally, a vital role for activist groups is to educate the public and politicians on an issue, both so that they care and know about it. Christopher asserted that "a lot of a political campaign is really an education campaign," which meant getting information about the issue to people. He elaborated that part of the reason for this was that there was plenty of "misinformation from the oil and gas side." One aspect of these educational communications is science. Part of this is because of the authority of scientific information, since "so much of what

a lot of people believe is based on science” (Marie 2013). Yet, as many people know, presenting the facts alone is not always best strategy and adding emotional aspects can make for more effective communication. Christopher spoke to this point:

Just presenting people with the facts doesn't do it. People react to things emotionally. So if you can deliver a message that's both true but has emotional content with it then you can reach people. That's why *Gasland* is effective. Josh Fox does a really good job balancing between dramatizing the situation along with a lot of information and factual physical evidence of the polluting effects of fracking.

Educational communications are important for increasing social capital in a community as well as influencing politicians. Heide emphasized the necessity of educating public officials saying: “You just have to give them information. This is one of a zillion things that they have to be handling.”

Research, both for accurate communications and in the formation of strategy is also important. Mike spoke about his experience conducting research for the election:

I probably spent 30 hours looking through precinct data from old voting records and past elections in Longmont when we thinking about doing the general election campaign just to handicap our chances and see if we had any opportunity to win. But you do the same thing if you're working to pressure City Council members, State Legislators, County Commissioners...the people in Longmont on the east side of town got involved because they didn't want a fracking well in their backyard. So you got to speak similarly to an elected official's self interest of staying in office or moving to a higher office.

Research points to where and how resources should be expended in order to effectively create social change. Since every group has limited resources, including social capital, it is important to distinguish areas where resources can be effectively used.

During the course of my research, hostility often occurred in public meetings between local officials and citizens. As someone who had not been exposed to many heated public exchanges or activism before this research, I was very interested in these exchanges. The height of this hostility was reached on the evening of December 4, 2012 when a mic-check disrupted the Boulder County Commissioner meeting. Among activists, part of the controversy over this

direct action was the worry that it would harm activist groups and their ability to recruit members, thus decrease their social capital. The basic question for activist organizations to ask about hostile communication and direct action is: do these serve to help the group?

Karen Tracy's concept of reasonable hostility can be used to explain hostile interactions during communication that can be justified. She states:

Reasonable hostility involves emotionally marked criticism of the past or future actions of public persons. Whether communicative acts deserve to be labeled reasonable hostility often will be a matter of disagreement, as reasonable hostility is an interpretation rather than a list of dos and don'ts. From a target's point of view, a stretch of reasonable hostility will almost always be seen as rude and unfairly attacking; for others in the public situation, criticisms regarded as morally warranted will be assessed as reasonable hostility. (Tracy 2008:170)

Reasonable hostility describes public remarks that fall outside the standards of civility but are not widely seen as unfair. One of the important points for understanding reasonable hostility is that it is a label applied to confrontational acts with approval from the majority of the public (Tracy 2008:185). Thus, "If only the speaker and the handful of people closest to that person judge the communicative action as "needed", it is not reasonable hostility" (Tracy 2008:186).

Part of why reasonable hostility is useful to this analysis is because there was hostility to public officials from some activists, yet it was often not condemned by the community. One of the things that occurred often during county commissioner meetings was public testimony in which a speaker accused the commissioners of failing in their duties to protect the county's citizens. Tracy (2008:181) observes that "to state or imply that an elected official (or citizen) is not attending to an institution's basic values cannot be other than insulting." Oftentimes, just such a sentiment was expressed by many people who felt that by allowing fracking county officials were failing to protect their health and safety. However, such comments can be "appropriate in local governance sites when a set of people in the immediate public group or a larger public judge that critical, competence-challenging comments need to be uttered" (Tracy

2008:188). In the debate over fracking in Boulder County it seemed that many felt that the county commissioners needed to be challenged to take a stronger stand against fracking.

Another important point made by Tracy is that hostility during local government meetings can be positive:

If ordinary democracy is to flourish, not only must hostile expression be permitted, but the positive function it serves must be recognized. Across time and occasions, governance groups need bits of civil and hostile talk. In sites where people have partly conflicting and partly overlapping interests, one without the other is likely to be a sign of a serious trouble. (Tracy 2008:188)

Thus, when such hostility is judged reasonable such hostility is not the sign of an unruly mob but the expression of citizens concerned over an issue that affects them deeply. Reasonable hostility is a sign that democratic participation is occurring and can also be a sign that citizens feel that they being left out of the democratic process or their interests are not being addressed. Actions that can be classified as reasonable hostility are actions that can be helpful for the accumulation of social capital by activist groups. If a confrontational action or communication falls outside of reasonable hostility, it could impact the ability of a group to accumulate social capital.

During Tracy's (2008:177) research on school board meetings, civility became an issue when a school board released a statement on civility, similar to an action taken by Boulder County during my research. Civility is important to discuss because while it is valuable in casual conversation, it is bound up in power structures during local government meetings. The county commissioner meeting after the disruption that featured statements on civility expectations and uniformed, armed, law enforcement officers to enforce civility shows how civility can be a tool of domination. The use of armed law enforcement to enforce civility is an especially powerful example of how civility was bound up in the power of the county commissioners over ordinary citizens. In such an environment civility is not necessarily a neutral expectation; it can also be seen an expression of power by a local government unable to handle the criticism of concerned

citizens. Such an expression of domination is unfortunate if one accepts Tracy's assertion that hostile debate is actually a sign of a well-functioning democratic endeavor, while suppressing such hostility would indicate an unraveling of democratic debate.

In the case of the encounters at Boulder County Commissioner meetings, the question of whether the comments represented reasonable hostility lies in the opinions of the proverbial silent majority. Due to the unabashedly liberal complexion of the County, it is likely that the hostile and critical words during public testimony at the meetings would be classified as reasonable hostility. Applying the concept of reasonable hostility to the occurrence of direct action might be helpful in analyzing the effect of direct action on activist organizations' abilities to accumulate social capital. Due to the overwhelming testimony against fracking by citizens at the meetings, the disruption could be classified as reasonable hostility by those concerned with fracking. However, from my conversations with a variety of people in the county I would say that if the concept of reasonable hostility was applied to the action undertaken by a few citizens where they followed an Encana representative to her car with harassing comments, it would not be classified as reasonable.

In Boulder County, there were significant concerns by many people that their democratic rights were being infringed for the benefit of a select few. They had witnessed a process of governance that denied their desired outcome and so they reasoned that they would have to take actions outside the process. These fears were supported by the state government and hydrocarbon industry lawsuits against Longmont over local government and citizen-passed initiatives. However, it was made very clear by the county commissioners and others that the county could not legally enact the activists' goal of a ban on fracking and that only the state could do that.

“One can envision...landscaped energy parks, glowing towers and stacks amidst a national wasteland of stripped countryside, decaying cities, unemployed citizens, and neglected public services—monuments to corporate planning and political mindlessness.” – Robert Engler (The Brotherhood of Oil. 1977. New York: New American Library).

Conclusion

Fracking has become a nationally important issue over the last ten years. The oil and gas industry continues to run advertisements heralding the benefits of natural gas. Many politicians in both parties proclaim the potential of natural gas and an ‘all of the above’ energy strategy. Concurrently, the anti-fracking movement continues to grow with the parallel formations of a national coalition (Americans Against Fracking) as well as a Colorado coalition (Protect Our Colorado) over the last year. Hollywood has also taken notice, as shown in the recent release of *Promised Land* (2013), a commercial film dealing with fracking.

The clearest example of how extensive fracking has become in the United States is that it can now be seen from space. In North Dakota, there are so many gas flares from wells that their light emissions can be tracked from space (Krulwich 2013 [Online]). On some nights, North Dakota is almost as bright as the Aurora Borealis” (Krulwich 2013 [Online]). The expansion of natural gas extraction due to fracking has undoubtedly brought economic benefits to some, yet the question remains: to what extent are these benefits are worth the costs? Currently, it is difficult to accurately understand the risks of fracking due to the uncertainty in scientific research. However, activists against fracking are quite certain of the harms it will bring to their communities.

In Boulder County significant gains were made by activists and community-based organizations against fracking. One of the most significant factors that impacted success was whether a municipality was home-rule, as this allowed greater citizen influence over local governments. This was most true in Longmont where their ban on fracking passed with

extraordinary community support. The struggles are ongoing in other towns, with Boulder and Lafayette looking to emulate Longmont's success and pass bans of their own. Erie was not able to achieve such results and faces the expansion of natural gas extraction in their community. While activists made efforts to stop fracking at the level of Boulder County, the commissioners voted to pass regulations that will still allow fracking on county lands. Efforts across the county are ongoing in response to the imminent arrival of more fracking.

There were a variety of factors that came together and allowed for Longmont's success. I have argued that the concept of social capital allows greater understanding of these factors. Longmont was a home rule municipality, which meant the activists were able to circumvent the city council and independently initiate a ballot campaign. Compared to the opposition, Main Street Longmont, the anti-fracking activists were able to build connections in the community and use these connections to turn out support. The accumulation of social capital by Our Longmont allowed them to turn out many volunteers in their effort to educate the citizens of Longmont and gain support for their ballot initiative. This strategy was in sharp contrast to Main Street Longmont, which spent almost \$500,000 on advertisements. Yet Our Longmont's strategy turned out to be much more effective, since Question 300 passed with 59% of the vote. Almost all the activists I talked to from Longmont felt that a wide variety of factors came together in the right way. Mike thought there was a lesson from the experience of Longmont: "So the research, the strategy, and the internal group dynamics, I think those are the three things that really come together to make an effective group and campaign."

There were a variety of lessons from Longmont that Boulder and Lafayette can use to help pass bans of their own. Lafayette activists are attempting to emulate Longmont more closely with preparation underway to get their city council to act or to have a citizen initiative that will

bring a ban before the voters. One of the biggest challenges that Lafayette activists will face is that there is no imminent threat of fracking within their city limits. One factor in the concern many Longmont citizens had with fracking was the pending arrival of fracking within the city. On the other hand, activists in the city of Boulder are attempting to convince the city council to pass a ban of their own accord, which is a promising strategy considering Boulder's liberal reputation. One of the key lessons for these efforts is that building social capital is enormously useful and allows for greater expression of power by the community-based organizations. Specifically, if these community-based organizations can accumulate a significant amount of social capital, the power this generates can overcome being outspent by opponents that favor fracking.

There were a variety of explanations for the lack of success in Erie relative to Longmont. Fracking had already been occurring for quite some time before citizens and activists realized what was occurring. Furthermore, as a municipality with significant sections of the town in neighboring Weld County, there was significant acceptance of fracking. Additionally, since Erie is a statutory municipality and not a home rule municipality, the citizens of Erie could not circumvent the decisions of their town board. Due to such impediments, Erie Rising was not able to achieve their desired outcome, leading some members of the group to choose to move away. In many ways the experiences of the citizens of Erie, including realizing there were unusually high levels of pollution, functioned as a wakeup call for many other citizens.

In a similar manner, Boulder County did not have the power of home rule that allowed for greater citizen involvement. This left the activists and activist groups without a clear path to achieve their goal of a fracking ban. It seemed that the lack of a clear path led to increased frustration and conflict among the anti-fracking activists of Boulder County. This lack of a path

also led to significant frustration with the perceived neglect of activist demands for a ban by the Boulder County Commissioners. The dissatisfaction of some activists was in turn expressed through direct action and hostile communications. It seems likely that there will be further direct action against fracking in the future due to the passage of regulations that will allow fracking in the county, despite activist demands of a ban.

Across the state of Colorado significant changes were also wrought both in municipalities and at the state level. Various municipalities have begun to consider moratoriums and bans as activist groups opposed to fracking have appeared throughout the state. The city of Fort Collins passed a ban on fracking toward the end of my research, which surprisingly led to a more conciliatory response from Governor Hickenlooper. Even the COGCC is considering increasing its regulations further after some small increases due to the appearance of such widespread opposition to fracking. Overall though, many in the political establishment of the state remain convinced that fracking will bring more benefits than harm to the state.

The lessons from my research on how to effectively create social change are varied. My analysis revealed that the concept of social capital can be very useful for understanding how social change occurs and why community-based organizations are effective. However, more practical lessons also abound, thanks to the extensive knowledge of my informants. Christopher gave a succinct description of running a political campaign:

I think any political campaign runs with a core group of people who help start it and are dedicated. Then there's a smaller group around there who are interested and can volunteer some of their time but they're not as passionate. Then from there it reaches out from there to a larger group of people who might sign your letter of interest or be on your email list.

There are no perfect solutions or models for effective social change. Despite these difficulties, the more we learn about activism and the greater our understanding of social change becomes, the better we can make the world.

A Broader Context

The anti-fracking movement is a subset of the wider environmental movement and has arisen over the last decade as fracking has increased. The environmental movement has always been concerned with pollution, which is also a concern with fracking. The environmental movement is especially concerned with anthropogenic climate change, which relates to fracking. Although we do not know precisely how much, we do know fracking contributes to climate change. Fracking also undermines the viability of clean energy sources by decreasing the price of natural gas. As a relatively new part of the environmental movement, the anti-fracking movement is sometimes in opposition to parts of the environmental movement, since some sectors of the environmental movement support fracking for natural gas development.

Social movements in general have often been the cause of significant social change. This can be seen in the labor, women's rights, civil rights, and other movements throughout history. The environmental movement (including the anti-fracking movement) is similar to these movements in seeking to change the way that things currently stand. Oftentimes social movements arise from populations that believe they are not being represented or heard by those currently in power. In fact, "it seems indisputable that social movements can significantly contribute – at a range of levels from the local to the transnational – to the generation and reproduction of empowerment" (Stewart 2001:233). Social movements are a medium through which people attempt to express their desires that are not being met in society.

Fracking can be seen in the context of a larger societal turn toward neoliberalism. Neoliberalism is often thought of as a political and economic ideology that emphasizes the importance of the market. There are specific "neoliberal policies such as deregulation," as well as an emphasis on "strong private property rights" (Thorsen 2010:13, 14). The rise of fracking

can be attributed to developments and policies that could be classified as neoliberal. For example, fracking has experienced significant deregulation, such as the so-called Halliburton loophole. Although there has been some increased regulation, the current political establishment seeks to maintain the deregulation of fracking. Furthermore, in Colorado the arguments for fracking, especially against Question 300, rested on the proposition that the oil and gas industry has a right to their property. The idea that fracking will bring economic growth and create jobs is also often used to promote fracking. In these ways fracking can be seen as a part of the broader turn toward neoliberalism globally over the last several decades.

An interesting perspective for understanding social movements is to consider the influence of power and domination upon the citizens who make up the movements and the institutions they rally against. In the case of many community-based organizations, they can be described “associations of the new middle class seeking to defend a lifeworld against the encroachments and disruptions of a subversive and dominating functional rationality” (Stewart 2001:216). In the case of Our Longmont and many other anti-fracking groups, they are often middle class citizens who believe their way of life is threatened by the arrival of fracking in their town. These activists refuse to accept the extraction of natural gas near their homes, schools, and parks and so they band together to prevent it. In Longmont, actions initiated through community-based organization to prevent what was seen as the destruction of their way of life ended up creating a new social order. A similar point to remember is that “a critical dimension of emancipatory movements involves their communication – both internal and external – of alternative value orders for the organization of public affairs.” (Stewart 2001:224).

As part of a social movement, anti-fracking groups are increasing and spreading throughout the country. This has led to speculation about what the future holds for the anti-

fracking movement and what kind of influence it can have on the nation. Quixote thought the anti-fracking movement has great potential:

When I pull myself back and look at this whole thing, this fracking issue could be the issue that Occupy never was able to pull off. And it can be truly grassroots because it will be focused more specifically and not generically, and it's coast to coast now. In some respects it is about Citizens United and corporate control. And you know big bullies and even the government being a big bully. Fracking might be the unifying concept for a bigger picture kind of thing... And because it hits people on a personal level, it's not like: 'I don't understand what the Occupy Wall Street is because I don't have stock' or 'I'm not an investor' or 'I don't understand what Wall Street is all about' or blah blah blah. Everybody understands what health is.

Further Research

There are a variety of areas where further research could be extremely useful. One of the biggest limitations of my research was that it was confined geographically to one county in Colorado. With the variety of activist groups across the state there are interesting comparisons that could be made with study of the other Colorado community-based organizations against fracking. With the passage of a ban in Fort Collins, a comparison between Fort Collins and Longmont is bound to be revealing. Furthermore, there are a variety of anti-fracking groups across the United States. While a significant amount of research is ongoing, there are still plenty of opportunities for more research. As more research on anti-fracking community-based organizations comes to completion the option exists for a wider survey of these groups, which could place fracking activism in a better theoretical context.

Another significant limitation of my research was that it focused exclusively on anti-fracking activists and failed to include other community members as well as politicians. A much more complete picture could be gained through greater contact with local politicians as well as community members not affiliated with the activist organizations. One difficulty that I encountered is that public figures are often reluctant to record their personal opinions or

perspectives. An industry perspective would also be useful for understanding the entirety of the situation around fracking in Boulder County and Colorado. Integrating a greater engagement with more nuanced theories of power could provide more insights into the factors that contribute to successful activism.

Research on activism is inherently interdisciplinary but this has not necessarily been evident in the literature on activism, some of which is restricted to a single or only a few disciplinary frameworks. Further research on social movements should utilize the insights on social movements provided by a variety of disciplines; a non-exhaustive list would include anthropology, communication, critical theory, ecology, geography, history, psychology, and sociology. Synthesizing the insights provided by these fields has created the most effective studies of social change and will continue to do so. If I had been aware of the depth of literature on social movements earlier in my research, then my project could have engaged deeper with previous literature on activism. Relating anti-fracking activism to other forms of environmental activism would another interesting endeavor, especially activism against other resource extraction techniques. Extensive literature also exists on environmental justice movements, which could make for interesting comparisons to anti-fracking activism.

More research is needed on the technique of fracking needed to clarify the debate over its safety. While there are studies linking fracking to many risks, there is still significant debate over whether these risks are widespread or atypical. Furthermore, in Colorado there are alarming possibilities that need to be further investigated before negative consequences occur. A peer-reviewed evaluation of the number of spills from fracking that led to groundwater contamination in Colorado would provide extreme clarity to the debate over the technique. Such research could even begin with a review of the data utilized by Davis (2013 [Online]). Furthermore, the

possibility of a link between fracking and property values deserves investigation, especially given the exodus of people from Erie. Determining the possibility of such a link would likely be most successful in an area with both significant amounts of fracking and widespread awareness of the fracking in that area. If there were a link between fracking and property values, it would be evident in such an area. Overall, there are abundant opportunities for further research, which if completed could be of great assistance to the controversy over fracking.

Appendix 1: Methods

The primary data of this study came from interviews with participants in the study. Potential participants were identified based on their involvement with the issue of fracking in Boulder County. I made contact with potential participants in order to set up interviews with the potential participants. After obtaining the consent of the participants I conducted the interviews. The in-depth portion of the study lasted from approximately August 2012 to April 2013.

Study Participants

The primary inclusion criterion was current involvement with the issue of fracking in Boulder County. I defined participation as any of the following:

1. Membership in a community-based organization with a position on fracking,
2. Involvement in the activities of such an organization,
3. Attendance at a protest against fracking,
4. Attendance at a political meeting or event discussing fracking,
5. Extended contact with persons who fall under the criteria of participation.

Study participants were drawn primarily from residents of Boulder County. However, there were some participants of the study who did not reside in Boulder County but influenced and took part in Boulder County events. Potential participants contacted included journalists, real estate agents, politicians, and activists who had knowledge about fracking in Boulder County.

Potential participants were recruited through three methods: email, the snowball method, and opportunistic personal contact. One technique I used was to email publicly listed email addresses for various community based organizations in the communities I studied. I described my research and asked if any members of the group were willing to talk with me. Another method I used was the snowball method, which involved asking study participants if they knew any friends, family, or acquaintances that were willing to participate in the study. Finally, the primary method of contact was through attendance at various public events for my research (such as rallies, protests, public government meetings, and the meetings of activist groups). At these events I conversed with attendees and when I conversed with suitable potential participants I described my project and verbally inquired if they were willing to participate in my study.

I contacted over twenty people about this study. I recorded interviews with ten individuals and met with thirteen persons to discuss the project. The participant population consisted of males and females over the age of eighteen. Due to the variety of people involved around the issue of fracking, study participants were a variety of ages over 18. I recruited both males and females to participate in the study and recruited near equal amounts of both sexes, although the ratio varied for individual communities. Participants were free to withdraw from the study at any time and for any reason. I interviewed ten activists from four different areas: Longmont, Erie, Boulder County, and Lafayette. During my research I interviewed four individuals who were activists in Longmont: Carol, Mike, Quixote, and Rachel. I was able to

speak to one member of Erie Rising, Marie. There were three individuals that I interviewed in Boulder County: Heide, a member of BoCoCCR, Lucy, an anti-fracking activist, and Declan, a member of Occupy Boulder. I interviewed two participants from Lafayette: Christopher and David.

Consent

Consent was obtained throughout contact with any potential participants. I met potential participants separately and before the interview in order to fully explain the study to them. After the initial meeting I scheduled an interview in a place in which they felt comfortable being interviewed. I explained my research to the participants and then explained the consent form to the participants. If they desired to participate in my research I asked for their verbal consent and then had them sign an attached consent form. Since all interviews and meetings took place in Boulder County, participants spoke English fluently or as their native language. Consent of subjects to participate in the study was documented in writing with the study's informed consent form. Participants in the study were able to receive a copy of the consent form. The completed forms were kept in my possession. Coercion was avoided in several ways. I clearly stated to any potential participants that participation in this study was purely voluntary (as stated on the consent form).

Data Collection

The main tool of data collection in this study was interviews with the participants. After identifying and contacting potential participants I met them and discussed the project in more detail and answered any questions they had about the research before scheduling a separate meeting for an interview, except in one case where the first meeting was an interview. Both the meeting and interview were scheduled based on the subject's preferences so that it was at a time and place they felt comfortable and that was convenient for them to meet.

My procedure in the interviews was to ask the participants questions based on a questionnaire sheet. The answers given to the questionnaire were recorded verbally or in writing. I ascertained whether the subjects consented to an audio recording of the interview. The total time interviews took from start to finish was a maximum of two hours, although on average it took a little over an hour for most participants.

The data that I collected for this research was primarily stored on my personal computer. I took handwritten notes but without any identifying information except pseudonyms. I recorded interviews with a digital recorder that allowed me to digitally transfer the recording to my computer. After the interview I transferred the recording to my computer that is only accessible with a password. At the completion of the study all data (including interviews and transcripts) was encrypted and archived.

Data Analysis

Analysis of the data consisted primarily of comparing the responses of different participants during their interviews based on their location and membership in various community-based organizations. This study analyzed how the formation, organization, and goals of these groups affected their success in influencing local policies on fracking. Data was analyzed based on the influence of the community-based organizations on fracking as measured by changes seen in local regulations on fracking and the influence participants believe to have occurred. Changes in regulations were measured from the formation of the community-based organizations to the completion of the study.

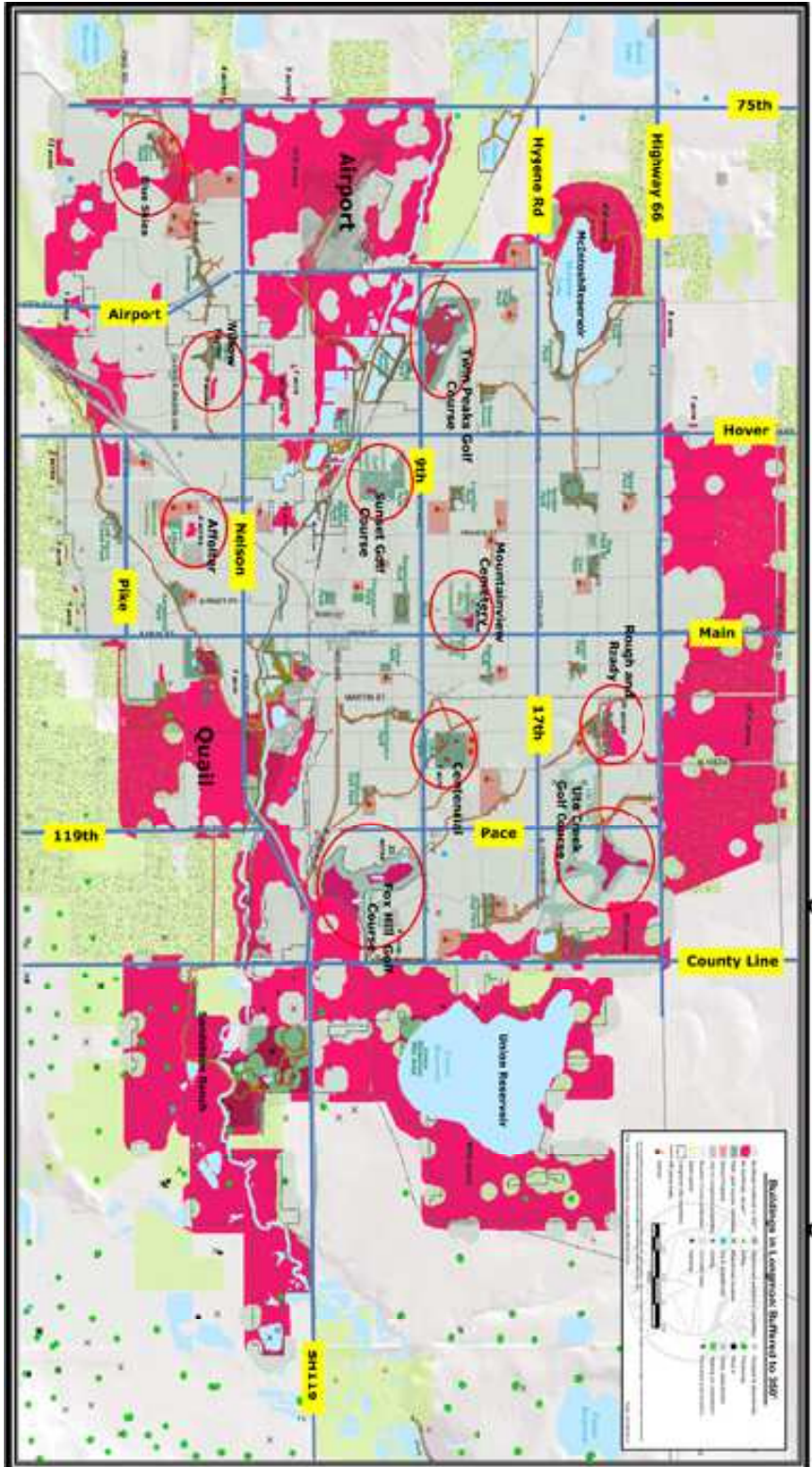
Risk Management

The risks to the participants in this study were minimal. There were no physical or psychological risks to participation in this study. There were no legal risks as no illegal activities were investigated. Social risks were minimal but included the possibility of exposure of a participant's involvement in the issue of fracking. However, there was little social risk as most participants had already publicly showed their involvement with the organizations opposed to fracking. There were several possible economic inconveniences. These could include slight expenditures of money for transportation to interview locations. Inconveniences also included the time spent on transportation to an interview location and the time being interviewed. Interviews did not take more than two hours and so the inconvenience of the time spent being interviewed was minimal.

Economic risks were minimized by my ability to meet participants for interviews at a location and time that was convenient and easily accessible to them. Legal risks were minimized by my refusal to discuss or research any illegal activities. Social risks were minimized by coding the names of participants with pseudonyms to protect the privacy of participants. Additionally, interviews were conducted in a location that participants felt comfortable being interviewed. I maintained an encrypted password protected file on my computer that was the only document with both the names and pseudonyms of participants. Emails between participants and me were deleted after the subjects had completed their participation in the study. Privacy interests of participants were protected through the use of pseudonyms for any data that participants gave me for the study.

Loss or theft of my devices was a risk but not a significant one since my devices were kept in my home when not in my personal possession outside of my home. My personal computer is only accessible through a password that only I know. As a further precaution any documents on my computer with identifiable information were encrypted.

**Appendix 2:
Proposed Longmont
Drilling Areas**



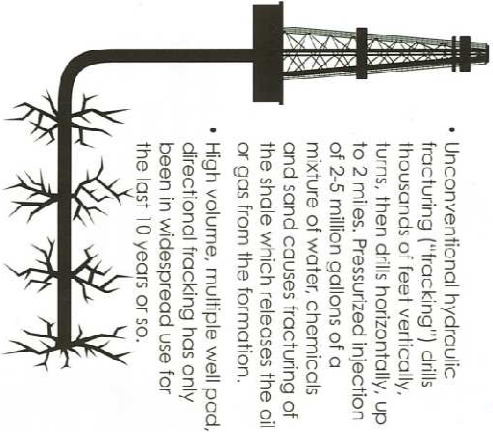
Areas in red represented areas open to drilling before the Longmont ban. Green circles represent active oil and gas wells.

Source: Longmont ROAR

Appendix 3: Selected Our Longmont Yes on 300 Campaign Materials

Our Longmont Yes on 300 Brochure (this page and next page)

Fracking is a dangerous, industrial activity.



- Unconventional hydraulic fracturing ("fracking") drills thousands of feet vertically, turns, then drills horizontally, up to 2 miles. Pressurized injection of 2-5 million gallons of a mixture of water, chemicals and sand causes fracturing of the shale which releases the oil or gas from the formation.
- High volume, multiple well pad, directional fracking has only been in widespread use for the last 10 years or so.

Imagine this in our beautiful parks, at Union Reservoir or, 350 feet from your home or your child's school...



Guarde a Longmont como un gran lugar para vivir.

La fractura hidráulica, utiliza la inyección a presión del agua y químicos tóxicos para fracturar el esquisto (shale) bajo la tierra para sacar petróleo o gas. Regula distancias del Estado permiten "fracking" a tan poca distancia de 350 pies de hogares y escuelas.

Cuando Ud. Vote in las elecciones de Noviembre, considere:

- Los efectos de salud de químicos tóxicos en el aire y el agua en proximidad cercano a donde nuestras familias viven, obran, y juegan.
- Disminución de valores de propiedades, Imagen comunitaria, belleza, e infraestructura (tal como caminos y calles) por cuales pagamos impuestos.
- Actividades industriales resultan en mucho ruido y calidad de vida más baja, debido al horario de trabajar directamente (24/7), poca iluminación al estilo estradal, y miles de vigas de camionetas petroleras para cada pozo.

Guarde nuestros derechos constitucionales con respecto a nuestra salud y seguridad y el valor y seguridad de nuestros casas! No se deje intimidar por el Estado y la Industria de Petróleo y Gas.

Vote "YES" en la pregunta 300 (Question 300)

Prohíba la fractura subterránea, "fracking", dentro de la ciudad de Longmont.

Visita OurLongmont.org para más información.

Paid for by Our Health, Our Future, Our Longmont - Dianna Osborn, Registered Agent

VOTE YES ON QUESTION 300

Question 300 is an amendment to the City Charter that prohibits fracking and the disposal of fracking wastes anywhere in Longmont city limits.

Our Health Our Future Our Longmont
OurLongmont.org

Keep Longmont a great place to live.



YES on 300

Prohibit Fracking in City Limits
OurLongmont.org

Fracking pollutes the air our families breathe.

- People living within a half-mile of oil- and gas-well fracking operations were exposed to air pollutants five times above a federal hazard standard.
- Some of these pollutants are known to cause cancer. Others cause neurological or respiratory effects that include eye irritation, headaches, sore throat and difficulty breathing.
(University of Colorado Denver School of Public Health study)
- Airborne silica used in fracking operations puts people nearby in danger of silicosis, a lung disease that can develop into lung cancer and is linked to tuberculosis, chronic obstructive pulmonary disease, and kidney and autoimmune disease.
(National Institute for Occupational Safety and Health (NIOSH) Hazard alert)

Fracking pollutes the water our families drink.

- Of 615 Spill/Release Reports filed with the state for Weld County, 47.8% impacted ground or surface water.
(Data from the COGCC - Colorado Oil and Gas Conservation Commission)
- Fracking uses 2.5 million gallons of fresh, municipal water per track. About 50% of the water comes back up and is contaminated by toxic fracking chemicals and poisonous minerals that it brings up from underground (some radioactive). It must be disposed of in underground tanks (injection wells) and is removed from the freshwater cycle forever.

▶ **Don't be bullied by the state and the Oil & Gas Industry.**

And more!

As if your air and water isn't enough, consider:

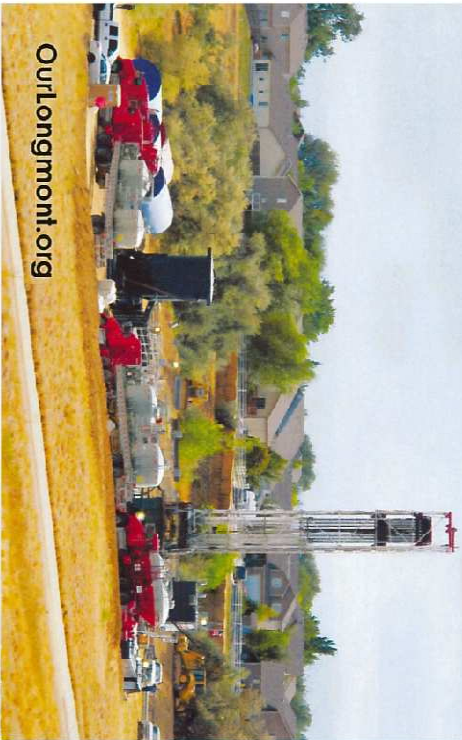
- Damage to property values, community image, beauty, and infrastructure (such as roads) we pay for with our taxes.
- Noise and lower quality of life resulting from 24/7 heavy industrial activity, stadium style lighting, and thousands of tanker truck trips for each well.
- Fracking and fracking wastewater disposal have been linked to earthquakes.
- Boom and bust jobs.

▶ **Stand up for our constitutional right to protect our health, safety, and property values!**





The Oil & Gas Industry has contributed **nearly half a million dollars** to convince you to **give up your rights** to protect your health, safety, and property values.

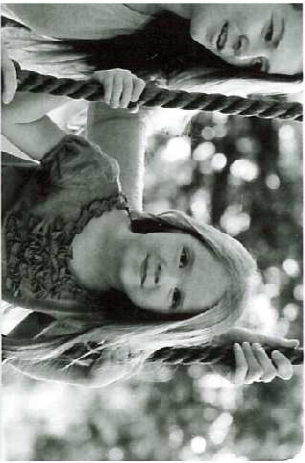


OurLongmont.org

Our Longmont Yes on 300 Mailer-Front

- **Not one single Longmont citizen** has contributed money to the campaign against Question 300.*
 - We have a **constitutional right** to say that hydraulic fracturing and disposal wastes from fracking do not belong near our homes, schools, and in our parks.
- *As of this printing, according to the 10/16/2012 Reports of Contributions and Expenditures for Mayor Street Longmont/Longmont Twpayers for Carriron Sense
- Thank you to the hundreds of Longmont citizens who contributed to the Yes on 300 campaign and made this mailer possible.**

Sacrificing health for profit.



▶ **"I had my neighbor sitting there saying, 'Well what would you do if they were going to put a drill well and do a frack right where you live? How close is too close?' I said, 'Well, I wouldn't like it.'"**

~ GOVERNOR HICKENLOOPER
Longmont Chamber of Commerce
Panel Discussion on Natural Gas
9/19/2012

- People living within a half-mile of oil- and gas-well fracking operations were exposed to air pollutants five times above a federal hazard standard.¹

- Some of these pollutants are known to cause cancer. Others cause neurological or respiratory effects that include eye irritation, headaches, sore throat and difficulty breathing.²

¹ University of Colorado Denver School of Public Health Study

Vote Yes on Question 300, on the back side of your ballot.

Keep Longmont a Great Place to Live!

More studies, facts and information at OurLongmont.org

Visita OurLongmont.org para más información en español.

YES on 300

Our Health
Our Future
Our Longmont
OurLongmont.org

14506 N. 83rd St.
Longmont, CO 80503

Our Longmont Yes on 300 Mailer-Back

Postage Paid
Longmont, CO
Permit No. 342

Paid for by Our Health, Our Future, Our Longmont - Dianna Osborn, Registered Agent

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