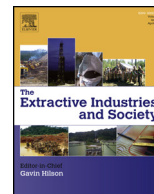




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Original article

Media representations of hydraulic fracturing and agriculture: A New York case study

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ABSTRACT

New York announced a ban on hydraulic fracturing in late 2014, making it the first state with significant natural gas resources to do so. Due to the prevalence of farmers as rural landowners and the economic importance of the agricultural sector in the state, farmers comprise an important stakeholder group who experience the ramifications of natural gas development. This study investigates the representation of agriculture within the context of hydraulic fracturing. Mainstream news media forms a site where groups on opposing ends of the hydraulic fracturing debate make, contest, and navigate claims regarding the risks and benefits of shale gas development. Using New York as a case study, this paper applies discourse analysis to three newspapers to analyze the portrayal of farmers as a significant stakeholder group within the hydraulic fracturing debate. This study identifies three primary themes within the representation of farmers and agriculture in this context: farmers as landowners, farmers struggling economically, and farmers as environmental stewards. These themes are situated within broader discourses of a “Not-In-My-Backyard” politics of risk and refusal. These themes are also framed by an urban/rural binary, which highlights certain ways of viewing agriculture in relation to hydraulic fracturing while obscuring others.

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1. Introduction

Natural resource extraction and perceptions of its risks, benefits and social impacts have been a prevalent source of scholarly inquiry in recent years (Ngawenja Mzembe and Downs, 2014; Willow and Wylie, 2014; Chapman et al., 2015). One such method of extraction, shale gas development *via* hydraulic fracturing, has sharply increased over the last decade, resulting in significant and often unforeseen social and environmental impacts in regions of development (Willow, 2014; Gamu et al., 2015). The sector which stands to be one of the most affected by shale gas development is agriculture, due to the large amount of rural land owned or used by farmers (U.S. Department of Agriculture, 2013; Hitaj, 2014). Yet, relatively little research has examined the potential impact of shale gas development on farmers.

Hydraulic fracturing, also known as “fracking”,¹ is a technology used to extract natural gas from shale rock formations which occur

deep beneath the earth’s surface. In the process, a vertical well is drilled, then injected with a liquid composed of a proprietary blend of water, sand and chemicals. The force of the fluid injection cracks open the shale rock, releasing the natural gas or oil trapped within (U.S. Department of Energy, 2013).

A variety of different stakeholder groups make different, and often contradictory, claims about the perceived risks and benefits of hydraulic fracturing. Oil and natural gas companies assert that the process is safe and environmentally-sound, and argue that gas drilling generates economic development by paying per-acre fees and mineral rights royalties to rural landowners, creating jobs, and expanding business opportunities (Considine et al., 2011; PIOGA, 2015). On the other side of the debate, anti-fracking activists associate hydraulic fracturing with a host of negative effects. Numerous studies have investigated the range of risks posed by natural gas extraction, including surface and groundwater contamination, air quality degradation, human and animal health concerns resulting from chemical exposures, increased greenhouse gas emissions, ecological hazards, and worker safety issues (Kelsey et al., 2012; Fry et al., 2012; Adgate et al., 2014; Jacquet, 2014; Small et al., 2014).

These competing claims outline the contested territory of shale gas development and the divergent arguments made over its perceived benefits and risks. This paper applies critical discourse analysis, a qualitative research technique, to examine these

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¹ Evensen et al. (2014) note that the term “fracking” no longer refers to the technical process of hydraulic fracturing, but rather a suite of practices and impacts relating to natural gas development. “Fracking” carries additional connotations, some of which are negative or lewd in nature. The authors recommend using the phrase “shale gas development *via* hydraulic fracturing” when possible to avoid bias or confusion. This phrase has been shortened to “shale gas development” for the remainder of this paper.

opposing claims within their social contexts. Specifically, this study focuses on portrayals of farming and agriculture using newspaper representations as a key site where discursive representations are co-created, formalized and circulated, as well as how such representations reveal underlying logics and ideologies informing both sides of the hydraulic fracturing debate. This analysis uses New York, the first state with significant shale gas reserves to ban hydraulic fracturing, as a case study to explore this under-studied intersection of natural gas development, agriculture and risk.

2. Hydraulic fracturing and agriculture

The relationship between hydraulic fracturing and agriculture is a significant, but as-yet largely unexplored, lens through which to examine the long-term effects of shale gas development. Over half of the rural land in the continental United States is owned or operated by farmers, with cropland, pasture and range accounting for 45% of total land use (U.S. Department of Agriculture, 2013). The presence of shale in agriculturally-productive regions of the U.S. highlights potential areas of tension between benefits and risks for farmers living near such areas, including competition for resources such as water, labor, and land; environmental degradation; payment of per-acre fees and royalties to farmers; and changes to the livability of the surrounding community (Hitaj et al., 2014).

Two recent studies have raised concerns about the effect of gas drilling on dairies in Pennsylvania, a state with a strong dairy industry and large natural gas reserves. These studies identify negative correlations between the number of drilled wells and changes in herd size and milk production (Adams and Kelsey, 2012; Finkel et al., 2013). Each raises the question of whether farmers will exit dairy and/or agriculture after receiving acreage fees and royalty payments for leasing their subsurface mineral rights. However, in both cases, the researchers concede that they cannot yet identify the mechanism explaining these effects.

As the first state with significant natural gas resources to announce a state-wide ban on hydraulic fracturing (Neuhauser, 2014), New York is a valuable case for exploring discursive representations at the intersection between shale gas development and agriculture. As this analysis will show, farmers are leveraged as powerful symbols in news media debates around natural gas extraction and food production in ways that reveal underlying ideological positions.

3. Regulatory environment for shale gas development

While a number of federal policies exist that should regulate processes related to hydraulic fracturing, in practice, a number of exemptions exist for each, contributing to a lack of comprehensive federal oversight for natural gas development (Kosnik, 2007; Brady and Crannell, 2012). Table 1 outlines the major federal regulations under which hydraulic fracturing is being or should be regulated, as well as the limitations of or exemptions present in each.

In addition to the policies presented in Table 1, the Obama administration announced new federal legislation on March 20, 2015 designed to regulate hydraulic fracturing on federal land (Davenport, 2015a). The final rule includes provisions to protect groundwater through well integrity validation and standards; chemical disclosure requirements; wastewater storage standards; and measures designed to lower risk of contaminant migration between hydraulic fracturing wells (Kershaw, 2015). However, the BLM final rule only applies to public and tribal lands, which constitute a fraction of the total land used for hydraulic fracturing. Despite the relatively minimal impacts and costs for oil and gas companies, the policy was widely criticized by conservative politicians and natural gas industry representatives, and as of September 2015, was blocked by court order (Davenport, 2015b).

The lack of comprehensive federal policies for hydraulic fracturing has resulted in a decentralized regulatory environment, characterized by highly-heterogeneous state-by-state policies for shale gas development (Negro, 2012; Davis, 2014). As a result, power is principally in the hands of individual state governments to regulate shale gas extraction (Warner and Shapiro, 2013; Wiseman, 2014). This is the case for the Marcellus Shale formation, which extends through much of Ohio, Pennsylvania, New York, and West Virginia. The Marcellus Shale region has seen a large increase in natural gas development over the past decade; yet state-by-state regulations applicable to it differ wildly. Pennsylvania, for example, has aggressively courted natural gas development for the past decade; over 9000 wells have been drilled there since 2005 (FracTracker Alliance, 2015). The neighboring state of New York, on the other hand, announced a state-wide ban on hydraulic fracturing in December 2014 (Neuhauser, 2014). As the first U.S. state with significant natural gas reserves to ban hydraulic fracturing, New York provides a valuable case study to analyze discourses at the intersection of shale gas development, agriculture, and risk.

Table 1
Federal regulations and exemptions for hydraulic fracturing in the United States.

Federal regulation	Scope of regulation	Exemptions
Safe Water Drinking Act	Ensures clean public water supplies Regulates of subsurface fluid injection	Hydraulic fracturing wells exempted from Class I well restrictions No federal disclosure requirement for hydraulic fracturing fluid chemical types/concentrations
Clean Water Act	Regulates pollutants discharged into U.S. waters	Oil field and gas operations exempted from stormwater runoff permit requirements
Clean Air Act	Regulates air emissions Authorizes emission standards for hazardous air pollutants	Oil and natural gas emissions from exploration/production wells exempt Permits for hazardous air pollutants not required
Resource Conservation and Recovery Act	Regulates handling, treatment, storage and disposal of hazardous waste	Exemption for oil field wastes, including hydraulic fracturing wastewater, from classification as hazardous waste
National Environmental Policy Act	Requires Environmental Assessments for government agencies to consider potential environmental impacts of legislation	Exemption for all activities relating to exploration and production of natural gas
Emergency Planning and Right-to-Know Act	Requires collection and release of data on chemicals used by industry near communities	Oil and gas industries not required to disclose chemical information
Comprehensive Environmental Response, Compensation, and Liability Act	Funds cleanup and remediation of accidents, spills, and abandoned or orphaned hazardous waste sites	Oil fields and spills involving natural gas, oil, or crude petroleum not defined as hazardous waste and exempted from regulation

Source: Brady and Crannell (2012).

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