



## Book Review

Shanti Gamper-Rabindran (Ed.), *The Shale Dilemma: A Global Perspective on Fracking & Shale Development*, University of Pittsburgh Press (2018) ISBN-10: 0822945134.

*The Shale Dilemma* (edited by Shanti Gamper-Rabindran) provides an evenhanded, extensively-researched, global examination of issues related to production of shale gas through hydraulic fracturing (fracking) and horizontal drilling. Using analytical tools drawn from economics, science, and risk analysis, the chapters in this volume consider why the US, UK, China, Poland, South Africa, and Argentina are pursuing development of shale gas while Germany and France are not. By examining different approaches to shale gas, the work leads us to a comprehensive understanding of the ‘promises and perils’ of development of unconventional fossil fuel.

Gamper-Rabindran opens with an explanation of the ‘twin technologies’ of high-volume hydraulic fracturing combined with horizontal drilling to extract gas trapped in shale rock. She surveys shale gas development, demonstrating how, with a tenfold increase production from 2007 to 2017, the United States continues to lead the way. She also defines the key *dilemma*: development of the resource “promises benefits but also threatens to incur costs, and these potential benefits and costs are unevenly distributed across society” (p. 5). While exploitation of shale gas may provide a ‘secure’ energy source, costs of development include potential environmental contamination and increased traffic and noise. In addition to the unequal social distribution of the potential risks and benefits, the debate is further complicated by significant uncertainties on the volume of recoverable resources as well as gaps in the data on environmental and health impacts.

The volume has three distinct goals for the analysis of each country’s case study: first, provide an overview of how ‘national characteristics’—such as the current energy mix, the security of energy supply, or its climate change targets—determine whether shale gas development is likely to “contribute to or negate the stated goals” such as climate change mitigation, energy security, and economic development (p. 10). The second goal is to describe the decision-making processes of each country, and how these processes lead to shale gas development policies. The third goal is to compare policies across countries to better understand why states can come to divergent decisions on how to balance the need for secure supply of energy and economic development with the need to safeguard the environment.

The first chapter provides an overview of the development and evolution of shale gas development in the United States, beginning with experimental stages in the early 1990’s and highlighting the growth of the industry within the context of economic, political, and legal support for shale development. The second chapter focuses on U.S legal cases brought in response to the unequal distribution of costs and benefits of shale gas. The chapter examines how the financial benefits are distributed across the economy while the costs of development fall heavily on local communities.

In the third chapter, Jim Skea discusses the United Kingdom,

examining how the government’s promotion of shale development has seen strong resistance from local communities, members of the general public, and environmental and other NGOs. The reasons for the resistance include concern over increased noise and traffic, as well as industrialization and urbanization of rural landscapes, and concern over health, environmental, and climate impacts. Skea argues that the government has supported development of shale gas because of the need to replace declining North Sea fossil fuel production. However, energy security has not been a significant factor in the debate because of the UK’s diverse energy supply and development of renewable sources. Skea’s chapter concludes that the government and NGO’s have opposite perspectives that will be a challenge to reconcile, and that there is “little prospect of a consensual approach emerging in the immediate future” (p. 170).

The fourth chapter deals with the Polish case as author Michael LaBelle demonstrates the way in which the argument for energy security dominates the debate in a nation dependent on Russia, which provides 70% of Poland’s gas demand. Because of this, there is little political space to address concerns with the technology. Furthermore, there are few mechanisms for Polish citizens to address social and environmental impacts, as regulation of shale gas is largely in the hands of EU member states.

In the fifth chapter, Patrice Geoffron discusses the French case, elucidating how the government failed to engage local communities and governments during initial approval of exploratory permits, as well as during national consultation on decisions that impact the environment. Because the government’s failure to consult local communities occurred within the context of a strong tradition and history of local political activism, this failure ‘snowballed’ into staunch opposition to hydraulic fracturing. Geoffron further explains that because France’s current energy mix—based predominantly on nuclear energy—is secure and relatively low-carbon, the country is “not compelled to exploit its shale resources to address energy security the way other countries perceive the necessity to do so” (p. 224). Opposition by local communities as well as the general public resulted in a 2011 ban on high volume hydraulic fracturing (HVHF), known as the *Loi Jacob*. Although the French debate on shale gas is not over, it has become even more polarized, with politicians on the right calling for a reassessment of the ban and politicians on the left supporting a continued ban.

Miranda Schreurs, next analyses the German case, which considers the role of shale gas development in the transition to a lower-carbon society and whether unconventional gas can benefit the climate and promote energy security. The debate on shale gas unfolds in the context of the country’s energy transformation, or *Energiewende*, where Germany’s fossil fuel and manufacturing sectors favor development while industries such as renewable energy and agriculture, NGOs, and the wider public oppose development. Schreurs explains that the country’s coalition government enacted a law that allows HVHF for shale resources *only* for research purposes, subject to the approval of the government of the state where test drilling is proposed.

Chapter seven examines the Chinese case: Alvin Lin explores how China’s shale resources were developed to manage the urban air

pollution crisis as well as reduce national greenhouse gas emissions. However, Lin shows that this development can cause a concentration of significant risks to public health and environmental quality in rural communities adjacent to shale development unless the Chinese government “enacts and enforces shale-specific environmental regulations” (p. 267). Lin discusses the importance of addressing the lack of transparency within the shale industry, in addition to gaps in the regulatory framework, and notes that while the government is attempting to improve transparency, access to information—including Environmental Impact Assessment reports—remains restricted in the industry. He concludes that the way China’s shale strategy will unfold in the future depends on the “government’s willingness to give sufficient weight to environmental and social protections,” since “regulations alone, without enforcement, are not effective” (p. 296).

In the eighth chapter, Maria Florencia Saulino discusses the situation in Argentina, which has developed national shale resources in response to declining production of conventional gas and to reduce the amount of imported gas. Here, the three governmental levels (local, provincial, and federal) that share responsibility for monitoring and regulating shale gas have not adequately addressed local concern on risk. Saulino’s argument is that Argentina must improve response to concern of local communities by bridging gaps in regulation; improving transparency about development processes, pollution occurrence, and regulatory enforcement; in addition to implementing mechanisms to resolve local conflicts and concern about incidence of pollution and land encroachment.

In chapter nine, Barry Morkel and Maarten de Wit analyze how South Africa’s emerging economy has put high expectations on the development of shale gas resources as a method to both deal with poverty and high rates of unemployment as well as to meet rising energy demand. However, South Africa also has significant difficulties

with implementation of tighter regulation as well as with establishing successful taxation schemes for natural resources and enforcement mechanisms to accomplish economic development and enhance environmental protection. A key lesson Morkel and de Wit point out is the need to involve low-income communities in the country’s Karoo region—communities that are largely neither informed of plans for shale resource development nor engaged in public consultation procedures.

In the work’s tenth chapter, Gamper-Rabindran synthesizes two crucial lessons from the international case studies examined. First, the argument that shale gas is necessary to ensure energy security is a powerful one in countries that have opted to develop shale resources, including the United States, China, Argentina, Poland, and South Africa. Because of this argument, it has been more difficult for citizens’ concern over the negative impacts to be adequately addressed. Conversely, in countries such as Germany and France that have significant investment in alternative sources of energy, coalitions opposing shale gas have blocked development on the basis that the anticipated economic benefits do not outweigh the costs.

The second lesson is how to balance the needs and wellbeing of local communities “which bear the brunt of costs from shale development” with the interests of the society at large, which may benefit from development of shale resources (p. 21). The book concludes with realistic, concrete suggestions that could minimize negative impacts incurred on local communities, such as increasing access to information regarding risks, increasing transparency in both industry and governmental regulatory bodies, and, crucially, allowing local communities to decide for themselves if they want to pursue shale development or not.

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