

REPAIR THE ROOF BEFORE IT RAINS -- REGULATING WATER CONSUMPTION AND POLLUTION FOR SHALE GAS DEVELOPMENT IN XINJIANG, CHINA

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Overview

In China's "War on Pollution" as declared by Premier Li Keqiang, natural gas is one "heavy weapon" because of its much better environmental performance compared to coal. China sits on the largest shale gas reserve, one type of unconventional natural gas, in the world. However, development of shale gas consumes substantial amount of water and generates water pollution. China's poor record in environmental policy enforcement exacerbates the concerns. The Tarim Basin in Xinjiang has the second largest shale gas resource in China. Though shale gas development has not been launched there yet, this research aims to evaluate the current environmental regulatory frameworks and institutions on the oil & gas industry in Xinjiang, which is the most relevant to shale gas development, from the perspectives of four types of stakeholders, the government, polluters, contractors, and third-party monitors. The research will especially apply the analytical concepts of monitoring, reporting and verification system, incentives for compliance, and costs of compliance in the disciplines of public administration and political science. We will collect first-hand data and information through sites visits in Xinjiang and the Tarim Basin. We will conduct interviews with local environmental protection bureau staff, researchers and specialists, concerned NGOs, local residents as well as engineers and staff in oil & gas companies. Publically available documents will be compiled and analyzed before the intensive fieldwork. Our research objective is to help repair the roof before it rains. Findings will offer direct advice to governmental and non-governmental organizations and shale gas developers.

Methods

Our analytical framework examines the environmental regulations on potential shale gas development in two steps. First, in regulation papers, how extensive regulations have covered particular environmental impacts and how implementable the on-paper regulations are? In China, local governments are also the major regulators in environmental policy enforcement, while the central government takes the responsibility of policy making. Based on the regulations promulgated at the central level, local governments formulate specific regulations or administrative measures for local environmental management. The coverage dimension focuses more on how the central government regulates environmental impacts. Catching environmental noncompliance mandates a clear definition of noncompliance, including which potential environmental impact is regulated and how to distinguish compliance from noncompliance. The implementability dimension to a greater extent addresses local governments. Sufficient details and pertinence will facilitate more accurate conversion of policies on paper to implementation on the ground. The central government could also more conveniently check whether local environmental officials have faithfully implemented policies.

Second, in practice, how effective environmental impacts are regulated and why? A polluting company would comply with environmental regulations if the costs of noncompliance – or the expected penalty, being the product of the penalty of noncompliance and probability of catching noncompliance – were greater than the expected benefits, or saved mitigation costs (Glaeser, 1999). More severe penalty or higher probability of catching noncompliance could lead to higher compliance rates (Glaeser, 1999). However, current environmental regulations on shale gas development in China provide neither severe penalty nor high detection rates of noncompliance (Guo et al., 2014).

We will collect a dataset of local and national regulation documents concerning about oil & gas development in the Tarim Basin, especially on their MRV systems for regulating water consumption and pollution. These documents provide detailed legal and policy evidences in our analysis. Furthermore, we will collect first-hand data and information through sites visits in Xinjiang and especially in the Tarim Basin. We will also conduct interviews with local environmental protection bureau staff, researchers and specialists, concerned NGOs, local residents as well as engineers and staff in oil & gas companies and their contractors. Publically available documents will be compiled and analyzed before the intensive fieldwork.

The research project will examine the environmental regulatory system regulating pollution of the oil & gas industry in Xinjiang, which is the most relevant to shale gas development. This governing system consists of four types of stakeholders, i.e., the government, polluters, contractors, and third-party monitors. First, the government is the official environmental regulator. We will examine water and pollution control agencies at all four interacting administrative levels, central, Xinjiang UAR, municipality and county. They enact and enforce environmental policies, and they interact with each other but have different, and sometimes contradicting, interests and concerns. Second, polluters in this case are the oil & gas companies. They invest in shale gas well drilling and are in charge of daily operation. Their decisions and behaviors responding to the existing pollution control regulations directly affect the surrounding ecosystems of the shale gas wells. Third, due to the division of labor, various specialized contractors are involved in, for example, shale gas well drilling, waste water transportation and treatment, as well as other components along the shale gas production chain. Their incentives and behaviors are also subject to environmental regulations and critical to control environmental impacts. Fourth, the civil society and other third-party organizations could help inform the public, monitor shale gas well drilling and operation, and assist the government to effectively regulate the polluters and contractors.

Results and Conclusions

If policy incentives are not strong and effective enough, local governments may not enforce environmental regulations and policies, shale gas companies and various contractors may not find compliance cheaper than non-compliance, and third parties may not have access to the relevant information and therefore will not be able to play the role of monitoring. Without suitable incentive structures, monitoring measures and encouragement of public participation, the existing environmental regulatory system in Xinjiang is not capable enough to ensure compliance with regulations on environmental impacts from future shale gas development. Improvements could be made to reduce compliance costs, streamline the monitoring, reporting and verification (MRV) system, and create strong enough incentives for the four stakeholders.

References

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