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Shale and Its Impact on Environment, Trade and Laws

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Abstract

The production of natural gas from shale formations has revived the natural gas industry in the world. Shale gas refers to natural gas that is trapped within shale formations which are fine-grained sedimentary rocks that can be rich sources of petroleum and natural gas found typical at a depth being about 2,500 to 5,000 m below the earth's surface as compared to the conventional crude oil at 1500 m. The shale gas exploration has a paradigm shift in the pattern of energy production and trade and it has become an increasingly important source of natural gas in the United States over the past decade, and potential gas shales in Canada, Europe, Asia, and Australia. It was estimated that there are 48 shale gas basins in 32 countries, containing almost 70 shale gas formations. The initial estimate of technically recoverable shale gas resources in the 32 countries examined is 5,760 trillion cubic feet. Natural gas is a cleaner alternative to the fossil fuels but shale as a natural gas while exploration has environmental hazards in the form of fresh water usage which will have an impact on the drinking water availability, irrigation difficulties besides effecting the fresh water aquatic habitat in many of the water scarce regions in the world besides seismic effects. In the process of drilling and hydraulic fracking of Shale, large amounts of wastewater is produced which contains dissolved chemicals and other toxic contaminants if it is not managed it can result in the contamination of surrounding areas, including sources of drinking water, and can negatively impact natural habitats and the water aquifers. For the reasons as stated Shale gas production has been blocked in many countries largely because of the environmental risks resulting in a significant issue of environmental justice besides the social concerns which resulted in legal restrictions. Uneven distributions of risks and social impacts to local communities must be balanced against the economic benefits to gas users and developers; and unequal decision-making powers must be negotiated between local and central governments, communities and fracking site developers. In the present scenario the fresh water scarcity will only get worse in many parts of the world which would ultimately lead to the long-term decline in the share of food and agricultural produce and thereby impact the international trade. This paper attempts to research on the following issues due to Shale gas exploration: The environmental hazards like climate change, greenhouse gas emissions, fresh water scarcity, natural calamities like earthquakes and the disruption of life in local communities in the exploration sites; Whether the economic growth is traded off with the environmental hazards; Impact on international energy trade; Internationally whether the current legislations are sound enough to tackle the shale gas exploration.

Keywords: Shale, Natural gas, Exploration, Environment, Trade, Economy, Legislations