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Estimation of water demand of the three major Brazilian shale-gas basins: Implications for water availability

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ABSTRACT

Shale gas exists in abundant quantities around the world and could augment conventional natural gas supplies. However, shale gas exploration through the fracking process is associated with negative connotations and is opposed in many countries because of the perceived environmental impacts including water contamination and competition with other water demands. In this context, the contribution of this work is to analyze the long-term impact of fracking water demand on water availability and possible contamination in Brazil. The objective is to estimate the long-term impacts of shale gas development in Brazil considering the water demand and propose regulations to address water withdrawal and contamination concerns based on best practices from around the world as a way forward. The study demonstrates that competition for water by prospective fracking activities in Brazil in comparison to available water resources and other water demands in associated hydrological basins is insignificant. Furthermore, an analysis of policy and regulations identify policy and regulatory recommendations that may ameliorate public concerns about fracking impact on water by enforcing compliance from exploration and production companies. Following this study, other countries can estimate their shale gas exploration realities to determine the impact of fracking impact on water resources.