



Impact of Shale Gas Development on Water Resource in Fuling, China

Hong Yang (1,2), Xianjin Huang (1), Qinyuan Yang (3), and Jianjun Tu (3)

(1) School of Geographic and Oceanographic Science, Nanjing University, Nanjing, 210023, China (hongyanghy@gmail.com), (2) CEES, Department of Biosciences, University of Oslo, Blindern, Oslo 0316, Norway, (3) School of Geographic Sciences, Southwest University, Beibei, Chongqing, 400715, China

As a low-carbon energy, shale gas rapidly developed in U.S. in last years due to the innovation of the technique of hydraulic fracture, or fracking. Shale gas boom produces more gas with low price and reduced the reliance on fuel import. To follow the American shale gas success, China made an ambitious plan of shale gas extraction, 6.5 billion m³ by 2015. To extract shale gas, huge amount water is needed to inject into each gas well. This will intensify the competition of water use between industry, agricultural and domestic sectors. It may finally exacerbate the water scarcity in China. After the extraction, some water was returned to the ground. Without adequate treatment, the flowback water can introduce heavy metal, acids, pesticides, and other toxic material into water and land. This may inevitably worsen the water and land contamination.

This study analysed the potential water consumption and wastewater generation in shale gas development in Fuling, Southwest China. The survey found the average water consumption is 30,000 cubic meter for one well, higher than shale well in U.S. Some 2%-20% water flowed back to the ground. The water quality monitoring showed the Total Suspended Solid (TSS) and Chemical Oxygen Demand (COD) were the main factors above those specified by China's water regulation.

Shale gas is a lower-carbon energy, but it is important to recognize the water consuming and environmental pollution during the fracking. Strict monitoring and good coordination during the shale gas exploitation is urgently needed for the balance of economic development, energy demand and environmental protection.