

**U.S. Environmental Protection Agency  
Science Advisory Board  
Public Meeting  
June 14, 2016  
Westin Alexandria  
400 Court House Square, Alexandria, VA 22314**

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I am an environmental scientist. I have a PhD from London University. I work on international development projects and I have spent 26 years physically present in developing countries. I specialize in environmental and social impact assessments of hydropower projects, and I have worked on energy projects in Brazil, Honduras, Mozambique, Nepal, Nigeria, Pakistan, Venezuela, and Vietnam. Depending on the project, my work follows the guidelines of the World Bank and the United States Agency for International Development (USAID). I have been a member of the Species Survival Commission (SSC) of the IUCN since 1985.

Does this experience qualify me to review in depth the EPA's draft Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources? The answer is "not really". My areas of expertise do not cover oil and gas extraction. I am therefore somewhat surprised that a highly technical piece of work such as this is being subjected to a public hearing. My personal opinion is that a HISA (Highly Influential Scientific Assessments) such as this should remain an internal agency document. Subjecting a HISA to a public hearing is potentially dangerous. One can end up trying to achieve technical and scientific truth by consensus.

I have reviewed the report to the best of my ability. I have come to the conclusion that the dissenting conclusions of the four members of the Science Advisory Board (SAB) are correct. That is

say: The June 2015 draft Assessment report statement "*We did not find evidence that hydraulic fracturing mechanisms have led to widespread, systemic impacts on drinking water resources in the United States*" is accurate, clear, concise, unambiguous, and supportable with the facts EPA has reviewed.

The impacts that have been identified so far for hydraulic fracking can be avoided and/or mitigated by site-specific best practices and routine inspections.

I have three suggestions for this report.

First of all, the statement that hydraulic fracking occurs in 25 states should be backed up by a simple geological map of the United States showing areas where hydraulic fracking is occurring and areas where it might occur in the future.

Second, the ESIA's that I work with have a cost-benefit component. A short discussion on how many jobs are generated by fracking and by how much fracking could offset our dependence on foreign oil would put everything more into perspective.

Third, hydropower projects can be categorized very quickly by their installed capacity, whether they are run-of-river or seasonal storage, estimated useful life, and so on. Could something similar be included for oil and gas wells?

Finally, the polemic being levied against fracking reminds me of the anti-dam lobbyists of the 1980s. Delays and cancelled projects caused hardship to millions of people. Eventually the lobbyists and industry got together and in 2000 the World Commission on Dams released its final reports on best practices that everyone follows today.

