Current coal seam gas approach not covering risks: Australian study

March 27 2012

(PhysOrg.com) -- Australia would greatly benefit from a "slow down and learn approach" to managing possible risks from coal seam gas extraction given the near impossible challenge of modelling its impacts, argues Professor Alan Randall from the University of Sydney.

"The grand Australian coal seam gas project is just getting started, so there is still the opportunity to slow things down, learn more about its impacts and apply what is learned to control the direction, scale and speed of future development," says Randall, Professor of Agricultural and Resource Economics at the University, in an article to be published in the forthcoming edition of the *Environment and Planning Law Journal*.

"Regulatory approaches are continuing to evolve but I am suggesting something much more comprehensive than anything currently under serious consideration."

Coal seam gas is trapped in pores inside the coal and held in place by large volumes of water. It is released by withdrawing this water, producing huge volumes of waste water (an estimated 300 gigalitres annually) which is very salty.

"Coal seam gas development (CSG) has a much greater footprint on the land and environment than the fairly modest area devoted to its well-heads would suggest, given the need for accompanying infrastructure such as roads, pipes, processing and waste storage and treatment

facilities.

"It will impact rural and community ways of life and reduce agricultural productivity everywhere it operates."

While the necessary modelling exercise for CSG would be enormous, the problem goes beyond that, according to Professor Randall. The cumulative shock to the system from CSG will be so large that standard modelling methods, better suited to modelling marginal changes, will be increasingly inaccurate and perhaps literally misdirected.

"The scale of planned CSG development is far beyond anything yet experienced. It is not just that we have not convincingly modelled the cumulative impacts of projected groundwater withdrawals for CSG, we simply don't know how to do it for shocks as great as CSG will create."

The key elements of a "slow down and learn" approach to CSG, as outlined by Professor Randall, would include curtailing CSG expansion until the completion of in-depth scientific studies and analysis of the impacts of existing CSG extraction technology on soil, the surface and the aquifers and developed and tested models of cumulative impact including:

-- a study of impacts on groundwater
-- research to design state of the art and cost-effective waste water treatment technologies, and
-- a comprehensive plan to direct, manage and control future expansion of CSG extraction.

In addition an integrated risk management approach to CSG would require adequate regulatory protections at the project level for future and, where feasible, existing projects.

"Of course, slowing down future CSG development will entail opportunity costs in the form of foregone economic benefits, but these costs could be less than we might think," Professor Randall said.

"It will take some time until we know better how to identify projects that entail manageable risks, how to manage those risks and where to draw the line on unacceptable risks. But when we do, the gas will still be there and depending on developments in energy markets, it may be even more valuable later than it is now.

"If the 'slow down and learn' approach seems rather banal, compare it with adaptive management, which seems to be the Australian regulatory answer to the issue of unpredictable impact.

"Adaptive management is essentially reactive - basically, feeling our way in the dark - and is a perfectly acceptable trial-and-error approach to unanticipated problems. Defaulting to adaptive management in the case of CSG, where we still have time to be proactive, is more like standing aside while the lights go out and then feeling our way in the dark," Professor Randall said.

More information: www.thomsonreuters.com.au/cata … ctDetails.asp?ID=886

Provided by University of Sydney